# SOUTHERN CALIFORNIA EDISON
# WEST OF DEVERS UPGRADE PROJECT

# HABITAT MITIGATION AND MONITORING PLAN FOR RESTORATION OF WATERS OF THE U.S. AND STATE

**PREPARED FOR:**

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**March 2019**

# Habitat Mitigation and Monitoring Plan Checklist

**Applicable Agencies:**

- ☐ Bureau of Indian Affairs
- ☒ Bureau of Land Management
- ☒ California Department of Fish and Wildlife
- ☒ California Public Utilities Commission
- ☒ United States Army Corps of Engineers, Los Angeles District
- ☒ United States Environmental Protection Agency
- ☐ U.S. Fish and Wildlife Service
- ☒ State Water Resources Control Board

**Applies to the Following Project Components:**

- ☒ Transmission Line
- ☒ Subtransmission
- ☒ Telecom
- ☒ Substations
- ☒ Distribution
- ☒ Construction Yards

**Addresses the Following Permit Conditions:**

| | |
|---|---|
| NWP Special Condition 2 | Compensatory mitigation for permanent impacts. |
| WQC Condition H.1 | Restoration of temporary impacts. |
| WQC Condition I | Permanent impact and ecological degradation compensatory mitigation. |
| SAA Measure 3.1 | Onsite habitat restoration. |
| SAA Measure 3.2 | Offsite habitat mitigation. |

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1-1 Project Overview

# Acronyms and Abbreviations

| | |
|---|---|
| BIA | Bureau of Indian Affairs |
| BLM | Bureau of Land Management |
| BMP | best management practice |
| CAISO | California Independent System Operator |
| CDFW | California Department Fish and Wildlife |
| CDR | Closure Demonstration Report |
| CEQA | California Environmental Quality Act |
| CFR | Code of Federal Regulations |
| CPCN | Certificate of Public Convenience and Necessity |
| CPUC | California Public Utilities Commission |
| CRAM | California Rapid Assessment Method |
| CV-MSHCP | Coachella Valley Multiple Species Habitat Conservation Plan |
| CWA | Clean Water Act |
| CWMW | California Wetlands Monitoring Workgroup |
| EPA | U.S. Environmental Protection Agency |
| FEIR | Final Environmental Impact Report |
| FEIS | Final Environmental Impact Statement |
| FGC | California Fish and Game Code |
| GIS | geographic information system |
| HMMP | Habitat Mitigation and Monitoring Plan |
| HU | hydrologic unit |
| IWMP | Integrated Weed Management Plan |
| kV | kilovolt |
| LST | lattice steel tower |
| m | meters |
| MM | Mitigation Measure |
| Morongo Reservation | Reservation Trust Lands of the Morongo Band of Mission Indians |
| MSHCP | Multi-Species Habitat Conservation Plan |
| NEPA | National Environmental Policy Act |

| | |
|---|---|
| NRCS | Natural Resources Conservation Service |
| NWP | Nationwide Permit |
| O&M | operations and maintenance |
| OHWM | ordinary high water mark |
| PEP | Plant Establishment Period |
| Plan | Habitat Mitigation and Monitoring Plan |
| PLS | pure live seed |
| Project | West of Devers Upgrade Project |
| PVC | polyvinyl chloride |
| RC | Restoration Contractor |
| RCRCD | Riverside-Corona Resource Conservation District |
| RE | Restoration Ecologist |
| ROD | Record of Decision |
| ROW | right-of-way |
| SCE | Southern California Edison |
| SR | State Route |
| SWPPP | Storm Water Pollution Prevention Plan |
| SWRCB | State Water Resources Control Board |
| TNW | traditionally navigable water |
| TSP | tubular steel pole |
| U.S.C. | United States Code |
| USACE | U.S. Army Corps of Engineers |
| USDA | U.S. Department of Agriculture |
| USFWS | U.S. Fish and Wildlife Service |
| USGS | U.S. Geological Survey |
| WOD | West of Devers |
| WP | Work Package |
| WR-MSHCP | Western Riverside County Multiple Species Habitat Conservation Plan |

# Restoration Definitions

***5-Year*** **Maintenance and Monitoring Period**—The period during which the maintenance needs of the restoration site are addressed and biological monitoring is conducted to measure the development of habitat onsite and evaluate the progression towards specified performance criteria. The maintenance and monitoring period typically commences at the close of the *120*-day plant establishment period and continues for *5 years or until all performance criteria have been achieved*.

**Absolute Cover—**The actual proportion of the ground surface covered by vegetation as viewed from above.

**Annual Mitigation and Monitoring Report**—Report which covers restoration/mitigation site progress to date; summarizes maintenance and monitoring activities for the previous year; provides results and a discussion of results for maintenance and monitoring activities; provides information regarding Project progress toward achieving established performance criteria; and offers remedial measures and/or management implications if necessary.

**As-Built Report—**An implementation report that summarizes and details all activities and methodologies associated with the restoration effort. In some cases, serves as the first Annual Report.

**Biological Monitoring—**Qualitative and quantitative monitoring that is conducted at regular intervals to evaluate the development of habitat and progress within the restoration/ mitigation site. Biological monitoring includes, but is not limited to, collection of cover data, survival, species diversity, plant density, and photo-documentation.

**Broadcast Seeding—**A method of seeding that is completed either mechanically using a seed spreader, or by hand using belly-grinder to evenly distribute seed over a restoration/ mitigation site.

**Container Plant—**Plant grown in a container of varying size (Deepot; TreePot; 1 gallon [G]; 5 G; 10 G; 15 G, etc.) that is planted within a restoration/mitigation site. Container plants can be propagated from seed, cutting, corm, rhizome, or tuber.

**Cutting—**A technique for propagating vegetation which includes cutting a part of a plant that will grow new roots, and grow into a new independent plant.

**Density—**Number of species in a defined area (e.g., per square mile).

**Diversity—**An index that incorporates the number of species in a given area as well as their abundance.

**Enhancement—**restoration in which the quality of an existing native community is improved by removing non-native species and/or installing additional native species. By preventing the spread of non-native and typically invasive species, competition for resources is reduced, and native vegetation is better able to regain dominance within a community.

**Erosion Control Fabric—**Material applied over disturbed soil to protect it from erosion. These materials are manufactured from natural or synthetic materials.

**Exotic**—Any non-native species deliberately or accidentally introduced into a new habitat or ecosystem.

**Hydroseed**—A seeding technique that involves spraying a slurry of seed, mulch, and typically a binding agent/dye onto a disturbed area to establish a cover crop of vegetation to prevent erosion and/or to revegetate the site.

**Impact**—To affect or influence in a significant or undesirable manner.

**Imprinting –** "V"-shaped troughs or indentations put into the ground (typically by machine) to increase the moisture retention of a restoration/mitigation area and improve seed germination and/or seedling establishment.

**Invasive**—Any species that is non-native to the ecosystem and whose introduction causes or is likely to cause economic or environmental harm, or harm to human health.

**Invasive Exotic**—Any exotic species that is deliberately or accidentally introduced to a habitat or ecosystem which is likely to cause economic or environmental harm or harm to human health.

**Jute Netting**—A fine netting made from natural plant fiber that is completely biodegradable. It is used for erosion control and soil stabilization on slopes and hillsides.

**Maintenance Monitoring**—Monitoring that concentrates on the overall performance of the restoration/mitigation site with consideration of various factors and conditions. Data collected typically includes soil conditions (e.g., moisture), hydrology, plant health and vigor, plant growth and cover, seed germination, the need for supplemental hand watering, the presence of volunteer native or non-native plant species, significant disease or pest problems, and soil erosion problems.

**Microtrash**—A term used to describe small bits of debris like bottle caps, rags, screws, bolts, wires, glass, and other materials found in natural areas that may cause harm to wildlife.

**Mitigation**—The process of creating, restoring, reclaiming, or enhancing habitat to compensate for impacts on an existing habitat.

**Non-native** —A species that is found outside of its native distributional range.

**Offsite Mitigation**—The process of creating or restoring habitat at a location other than the site impacted by Project construction.

**Onsite Mitigation**—The restoration/revegetation of areas disturbed by Project construction.

**Performance Criteria**—Specific performance standards or thresholds.

**Pest**—An organism that is considered detrimental to a restoration/mitigation site due its negative effect on plant growth, establishment, or survival.

**Photo documentation**—A technique utilizing photographs or other imagery to monitor, or document changes over time within a restoration/mitigation site.

**Post-Compliance Report**—A report that includes a comparison of the pre- and post-construction conditions, including a discussion and map overlays with supporting photograph documentation within the stream zone. This report also includes a summary of Project compliance, including noncompliance and corrective actions taken to achieve compliance.

**Propagate**—To reproduce a plant using seed, cutting, rhizome, etc.

**Propagule**—Plant material used for the purpose of plant propagation, such as a rhizome, cutting, or seed.

**Pure Live Seed**—A measure used by the seed industry to describe the percentage of a quantity of seed that will germinate. This is obtained by multiplying the purity percentage by the percentage of total viable seed, then dividing by 100.

**Qualitative**—Subjective assessment or evaluation of a particular condition, factor, or aspect of a restoration/mitigation site.

**Remedial Measures**—Action(s) to repair or correct a fault or deficiency.

**Restoration**—Intentional activity that initiates or accelerates the recovery of an ecosystem with respect to its health, integrity and sustainability.

**Restoration Contractor**—A person and/or company providing services or equipment towards the restoration of disturbed areas.

**Restoration Ecologist**—A person with specialized knowledge, education, and experience in the restoration of disturbed areas.

**Revegetate**—Process of reestablishing plants in a disturbed area by planting seedlings and/or mature plants, or application of seed.

**Silt Fence**—Temporary barrier designed to intercept and detain sediment from disturbed areas to protect water quality in nearby streams, rivers, lakes, or other water bodies.

**Soil Amendment**—Any material added to a soil to improve its physical properties. Improvement to soil properties include improved aeration, water retention, permeability, water infiltration, drainage, aeration and structure. Soil amendments could be organic (moss, grass clippings, wood chips, straw, compost, sawdust) or inorganic (vermiculite, perlite, gravel, sand).

**Straw Wattle**—Tubes of weed free (rice or wheat) straw enclosed in jute or other photodegradable material typically 8 to 12 inches in diameter and 20 to 25 feet long. Used for erosion control, sediment control, and storm water runoff control.

**Topsoil**—Upper layer of soil typically 2-10 inches deep. Has a high concentration of nutrients and organic matter. This layer is commonly referred to as the "A Horizon".

# Chapter 1
# Introduction

Southern California Edison (SCE) proposes to construct the West of Devers (WOD) Upgrade Project (Project) to increase the power transfer capability of the WOD 220-kilovolt (kV) transmission lines between the Devers, El Casco, Vista, and San Bernardino substations. The Project is needed to facilitate the full deliverability[1] of new electric generation resources being developed in eastern Riverside County in an area designated by the California Independent System Operator (CAISO) for planning purposes as the Blythe and Desert Center areas. The Project, planned to be operational by 2021, would upgrade the existing WOD transmission line system by replacing the existing WOD 220-kV transmission lines and associated structures with higher-capacity transmission lines and structures, and making telecommunication improvements.

This Habitat Mitigation and Monitoring Plan (HMMP, or Plan) was prepared to be consistent with the requirements of the Final Environmental Impact Report[2] (FEIR) and Final Environmental Impact Statement (FEIS) (Bureau of Land Management [BLM], 2016a) as presented in the Certificate of Public Convenience and Necessity (CPCN) (California Public Utilities Commission [CPUC], 2016b) and Record of Decision (ROD) (BLM, 2016b), respectively. The HMMP is consistent with the Habitat Restoration and Revegetation Plan (HRRP) and is specific to areas subject to permit conditions as outlined in the U.S. Army Corps of Engineers (USACE) Section 404 permit, State Water Resources Control Board (SWRCB) Water Quality Certification, and the California Department of Fish and Wildlife (CDFW) Streambed Alteration Agreement.

The HMMP has been prepared to satisfy the following permit special conditions:

***USACE Section 404 Permit***

> ***Special Condition 2****: Prior to initiating construction in waters of the U.S., and to mitigate for impacts to 0.81 acre of non-wetland waters of the U.S. , the Permittee shall provide documentation verifying purchase of 0.19 credit for rehabilitation of intermittent streams from the Riverside-Corona Resource Conservation District (RCRCD) in-lieu fee program, and 1.26 credits for establishment of intermittent streams from Coachella Valley Conservation Commission (CVCC) in-lieu fee program. Additionally, prior to initiating construction in waters of the U.S., and to mitigate for impacts to 0.15 acre of wetland waters of the U.S., the Permittee shall provide documentation verifying purchase of 0.42 credit for the rehabilitation of intermittent streams from RCRCD in-lieu fee program. The Permittee shall not initiated work in waters of the U.S. prior to receiving written confirmation (by letter or email) from the Corps Regulatory Division as to compliance with this special condition. The Permittee retains responsibility for providing the compensatory mitigation until the number and resource type of credits described above have been secured from the above-listed sponsor and the district engineer has received documentation that confirms that the sponsor has accepted the responsibility for providing the required compensatory*

[1] The terms "full deliverability" or "full capacity deliverability status" describe the condition whereby a large generating facility is interconnected with the electrical grid to allow the full delivery of electricity requested. CAISO Tariff, Appendix A, at footnote 2, http://www.caiso.com/2476/2476bc8114130.pdf.

[2] For the purpose of this Plan, "FEIR" refers to the FEIR (CPUC, 2015) and Addendum to the FEIR (CPUC, 2016a).

*mitigation. This documentation may consist of a letter or form signed by the sponsor, with the permit number and a statement indicating the number and resource type of credits that have been secured from the sponsor.*

***SWRCB Water Quality Certification***

***Condition H.1:*** *The Permittee shall restore all areas of temporary impacts to waters of the state and all Project site upland areas of temporary disturbance which could result in a discharge of waters of the state as described in a restoration plan. The restoration plan shall be submitted for written acceptance by State Water Board staff within 90 days of issuance of this Order. The restoration plan shall provide the following: a schedule; plans for grading of disturbed areas to pre-project contours; planting palette with plant species native to the Project area; seed collection location; invasive species management; performance standards; and maintenance requirements (e.g., watering, weeding, and replanting). The Plan shall also include monitoring requirements for the purpose of documenting progress toward achievement of the performance standards.*

***Condition I.3:*** *Purchase of Mitigation Credits by Permittee for Compensatory Mitigation (a) A copy of the fully executed agreement for the purchase of mitigation credits shall be provided to the State Water Board within 180 days of authorized impacts. (b) The Permittee shall retain responsibility for providing compensatory mitigation and long-term management until State Water Board staff has received documentation of the credit purchase and the transfer agreement between the Permittee and the seller of credits.*

***Condition I.4.a:*** *The Permittee is required to provide 0.420 credits in the Riverside Corona Recourse Conservation District (RCRCD) ILF Program (rehabilitation at 2.75:1 ratio) for the physical loss of 0.152 acre of wetland in the 801.00 hydrologic unit of the Santa Ana Water Quality Control Region.*

***Condition I.4.b:*** *The Permittee is required to provide compensatory mitigation for the ecological degradation of streams by purchase of 1.00 credits in the Coachella Valley Multiple Species Habitat Conservation Plan (CVMSHCP) In-lieu Fee (ILF) Program (establishment at 2.20:1 ratio) for 0.456 acre of stream channel impacts in the 719.00 hydrologic unit of the Colorado River Basin Water Quality Control Region and 0.184 credits in the Riverside Corona Conservation District (RCRCD) ILF Program (rehabilitation at 1.33:1 ratio) for 0.139 acre of stream channel impacts in the 819.00 hydrologic unit of the Santa Ana Water Quality Control Region.*

***CDFW Streambed Alteration Agreement***

***Measure 3.1:*** *Habitat Restoration - Onsite. Upon completion of construction activities, Permittee shall restore temporary work areas and access routes, including the 5.33 acres of streambed and associated habitats (hereinafter, collectively referred to as "Restoration Areas"), to pre-project conditions or better. Restoration activities, methods, and techniques shall be identified in a Habitat Mitigation and Monitoring Plan (HMMP) provided to CDFW for review no less than 30 days prior to the initiation of project activities. The HMMP shall be implemented and monitored by a CDFW-approved restoration ecologist. The HMMP shall include, but not be limited to: (a) a map and GIS shapefile of the Restoration Areas; (b) a plan for the preparation of the Restoration Areas, including: (i) stream channel recontouring, (ii) decompaction strategies, (iii) a nonnative plant removal plan, including procedures to ensure that nonnative plants are not introduced (the approved IWMP may satisfy this requirement), and (iv) details of native plant installation, including the type of materials to be utilized (e.g., local native seeds, cutting, and/or container*

*stock), source(s) of the materials, methods of installation, and a local California native plant palette; (c) a plan for the ongoing maintenance and monitoring of the Restoration Areas, including timelines and a schedule; (d) an irrigation plan, if applicable; (e) success standards for both native and non-native species, and (f) a list of contingency measures. Monitoring and maintenance of the Restoration Areas shall be conducted for a minimum of five years, and until CDFW determines the Restoration Areas to be successful.*

***Measure 3.2: Habitat Mitigation– Offsite.*** *Permittee shall compensate for project impacts, including 1.04 acres of permanent impacts and 5.33 acres of temporary impacts, through the purchase of 10.16 acres of streambed (and stream-associated habitat) rehabilitation credits from CDFW-approved conservation entities. Permittee shall purchase 4.39 acres of rehabilitation credits from the Riverside-Corona Resource Conservation District and 5.77 acres of rehabilitation credits from the Coachella Valley Conservation Commission, or as otherwise approved by CDFW in writing. Rehabilitation credits purchased shall fund upfront rehabilitation activities (e.g., non-native removal, minor grading, planting, etc.) and the ongoing preservation, protection, and management of those lands, in perpetuity.*

***Implementation locations: San Bernardino County (all);*** *WR-MSHCP (all, regardless of SCE's PSE status); CV-MSHCP (all, regardless of SCE's PSE status); BLM (all); reservation (recommended for all Morongo Tribal Lands).*

This HMMP in intended to work in conjunction with the following mitigation plans required by the FEIR and FEIS, including: (1) Habitat Restoration and Revegetation Plan (VEG-1d), (2) Habitat Compensation Plan/Habitat Management Plan (VEG-1e), and (3) Integrated Weed Management Plan (VEG-2a).

**Clean Water Act Section 404**

SCE submitted a Preconstruction Notification for the Project to the U.S. Army Corps of Engineers (USACE) on March 23, 2017, as amended on December 18, 2017, requesting authorization under Nationwide Permit (NWP) 12, Utility Line Activities, pursuant to Section 404 of the Clean Water Act (CWA). The NWP is to permit permanent and temporary impacts, including fill, in jurisdictional waters of the United States. NWP-12 allows for activities required for the construction, maintenance, repair, and removal of utility lines and associated facilities in waters of the United States, provided the activity does not result in the loss of greater than one-half acre of waters of the United States for each single and complete project. NWP-12 is applicable because it stipulates that when utility line activities cross a single waterbody more than one time at separate and distant locations, or multiple waterbodies at separate and distant locations, each crossing can be considered a single and complete project for purposes of NWP authorization. The USACE verified the Project under NWP 12 on February 28, 2018 confirming it complies with the terms and conditions, including regional permit conditions for NWP-12.

**Clean Water Act Section 401**

A CWA Section 401 Water Quality Certification Permit application and appropriate fee was submitted to the California State Water Resources Control Board (SWRCB) and the U.S. Environmental Protection Agency (EPA) by SCE on March 23, 2017. The SWRCB or applicable Regional Water Quality Control Board provides Section 401 Water Quality Certification for projects occurring on non-tribal lands, whereas the EPA typically provides the Section 401 Water Quality Certification for projects occurring on tribal lands. States, EPA, and/or tribes make their decisions to

deny, certify, or condition permits or licenses primarily by ensuring the activity will comply with applicable water quality standards. Issuance of the Section 401 Permit certifies that the Project complies with discharge effluent limitations, new source performance standards, toxic pollutants restrictions, and other water resource requirements of State or tribal law. The EPA certified the Project under EPA Programmatic Certification #0418 on April 19, 2017 and the SWRCB certified the Project on March 1, 2018 (Certification No. SB17003IN).

**California Fish and Game Code Section 1602 Streambed Alteration Agreement**

An application for a Lake and Streambed Alteration Permit (FGC Section 1602) was submitted by SCE on March 23, 2017. The fully executed Lake and Streambed Alternation Permit was issued on April 10, 2018. This permit is needed when the applicant may:

- Substantially divert or obstruct the natural flow of any river, stream or lake;
- Substantially change or use any material from the bed, channel, or bank of any river, stream, or lake; or
- Deposit debris, waste, or other materials that could pass into any river, stream, or lake.

The HMMP describes the off-site compensation for permanent impacts and on-site restoration of temporary impacts to jurisdictional areas that are directly impacted (e.g., damaged or removed) as a result of construction. Post-construction impact analysis will document the final condition of impacts along all phases of the Project, and any deviation from this initial assessment will be documented at that time. During construction, biological monitoring will assist with avoidance to and minimization of impacts to native species when possible.

A majority of impacts associated with construction activities for the entire Project are classified as temporary. Temporary impacts include subtransmission/distribution/telecom work areas, guard structure areas, tower disturbance areas, and wire setup areas. Permanent impacts are associated with road widening, drainage improvements, guard pole, new transmission structures, O&M Towers, and work areas . Combined, Project components will potentially place fill material in waters of the United States that would result in direct permanent impacts to 0.96 acre of waters of the United States (including 0.15 acre of wetland) and direct temporary impacts to 4.59 acres (including 0.30 acre of wetland) of waters of the United States. The Project would result in permanent impacts to 1.04 acres (4,754 linear feet) and temporary impacts to 5.33 acres (18,786 linear feet) of California Department of Fish and Wildlife (CDFW) jurisdictional water resources. Final mitigation ratios were established based on the results from negotiations prior to issuance of Section 401 (SWRCB), Section 404 (USACE), and Section 1602 (CDFW) permits. As stated in the CPCN, the no net loss standard shall be reached through (1) ecological restoration or revegetation of temporarily disturbed areas to fully replace habitat extent and habitat value, and (2) compensation at a ratio of 1:1 to replace permanently impacted non-wetland jurisdictional areas, and at 3:1 to replace permanently impacted state or federally jurisdictional wetland areas (CPUC, 2016b). For a more detailed description of mitigation requirements, refer to the biological resources chapters in the FEIR (CPUC, 2016a) and FEIS (BLM, 2016a). Additional mitigation requirements may be presented in the CWA and Section 1602 permits. The exact acreage of impacts will be recalculated once construction activities have been completed.

# 1.1 Project Overview

The Project would upgrade the existing WOD system by replacing existing 220-kV transmission lines and associated structures with new, higher-capacity 220-kV transmission lines and structures, modifying existing substation facilities, removing and relocating existing subtransmission (66-kV) lines, removing and relocating existing distribution (12-kV) lines, and making various telecommunication improvements. In particular, the Project would:

- Upgrade substation equipment within SCE's existing Devers, El Casco, Etiwanda, San Bernardino, and Vista substations in order to accommodate continuous and emergency power on the upgraded WOD 220-kV transmission lines. Activities related to substation upgrades will take place within the existing, disturbed fence lines of the substations and are not addressed further in this Plan.
- Remove and upgrade the existing 220-kV transmission lines and structures primarily within the existing WOD corridor as follows:
  - Segment 1 would be approximately 3.5 miles long and extend south from San Bernardino Substation to the San Bernardino Junction. It would include the following existing 220-kV transmission lines: Devers-San Bernardino, Etiwanda-San Bernardino, San Bernardino-Vista, and El Casco-San Bernardino.
  - Segment 2 would be approximately 5 miles long and extend west from the San Bernardino Junction to Vista Substation. It would include the following existing 220-kV transmission lines: Devers-Vista No. 1 and Devers-Vista No. 2.
  - Segment 3 would be approximately 10 miles long and extend east from the San Bernardino Junction to El Casco Substation. It would include the following existing 220-kV transmission lines: Devers-Vista No. 1, Devers-Vista No. 2, El Casco-San Bernardino, and Devers-San Bernardino.
  - Segment 4 would be approximately 12 miles long and extend east from El Casco Substation to San Gorgonio Avenue in the City of Banning. It would include the following existing 220-kV transmission lines: Devers-Vista No. 1, Devers-Vista No. 2, Devers-El Casco, and Devers-San Bernardino.
  - Segment 5 would be approximately 9 miles long and extend east from San Gorgonio Avenue in the City of Banning to the eastern limit of the Reservation Trust Lands of the Morongo Band of Mission Indians (Morongo Reservation) at Rushmore Avenue. It would include the following existing 220-kV transmission lines: Devers-Vista No. 1, Devers-Vista No. 2, Devers-El Casco, and Devers-San Bernardino.
  - Segment 6 would be approximately 8 miles long and extend east from the eastern boundary of the Morongo Reservation to Devers Substation. It would include the following existing 220-kV transmission lines: Devers-Vista No. 1, Devers-Vista No. 2, Devers-El Casco, and Devers-San Bernardino.
- Remove a portion (approximately 2 miles) of the existing San Bernardino-Redlands-Timoteo and San Bernardino-Redlands-Tennessee 66-kV Subtransmission Lines from within the existing WOD right-of-way (ROW) and reconstruct as follows:
  - The relocated San Bernardino-Redlands-Timoteo 66-kV Subtransmission Line would be approximately 2 miles long and reconnect to the San Bernardino-Redlands-Timoteo 66-kV Subtransmission Line inside Timoteo Substation.

  - The relocated San Bernardino-Redlands-Tennessee 66-kV Subtransmission Line would be approximately 3.5 miles long and reconnect to the San Bernardino-Redlands-Tennessee 66-kV Subtransmission Line at Barton Road.

- Remove a portion of the existing Dental and Intern 12-kV distribution circuits within the WOD ROW, and relocate the circuits as follows:
  - The relocated Dental 12-kV Distribution Circuit would be approximately 1.5 miles long and reconnect to the existing Dental 12-kV circuit.
  - The relocated Intern 12-kV Distribution Circuit would be approximately 2.25 miles long and reconnect to the Intern 12-kV circuit.
- Install telecommunication lines and equipment for the protection, monitoring, and control of transmission lines and substation equipment.

Figure 1-1, *Project Overview*, presents an overview of the Project divided by Segment.

# 1.2 Project Location

The Project is located largely within an existing utility corridor in incorporated and unincorporated areas of Riverside and San Bernardino counties, within the San Bernardino Valley.

The Project crosses the cities of Banning, Beaumont, Calimesa, Colton, Grand Terrace, Loma Linda, Palm Springs, Rancho Cucamonga, Redlands, San Bernardino, and Yucaipa, and unincorporated areas of Riverside and San Bernardino counties. The transmission corridor passes over Interstate 215 in San Bernardino County, as well as State Route (SR)-60, SR-79, SR-243, and SR-62 in Riverside County, and runs approximately parallel for the majority of the Interstate 10 corridor in both San Bernardino and Riverside counties.

The Project transverses several geographical and ecological zones, predominantly in the Southwestern California region, South Coast subregion, of the California Floristic Province, as described in The Jepson Manual (Baldwin et al., 2012). In the San Gorgonio Pass, the route passes between the San Bernardino Mountains and the Peninsular Ranges subregions. East of San Gorgonio Pass to Devers Substation, it is within the Sonoran Desert subregion.

The Project is located within the following U.S. Geological Survey (USGS) 7.5-minute topographic quadrangles: San Bernardino South, Redlands, Sunnymead, El Casco, Beaumont, Cabazon, White Water, and Desert Hot Springs.

The Project has been divided into six segments for discussion purposes. Segment 1, Segment 2, and the western portion of Segment 3 are located in incorporated and unincorporated portions of San Bernardino County. The eastern portion of Segment 3, all of Segment 4, and very small areas of Segment 5 are located in the Western Riverside County Multiple Species Habitat Conservation Plan (WR-MSHCP). Portions of Segment 5, excluding lands held in trust by the Bureau of Indian Affairs (BIA) for the Reservation, and most of Segment 6, excluding small parcels of lands administrated by the BLM, are located in the Coachella Valley Multiple Species Habitat Conservation Plan (CV-MSHCP).

Chapter 2
# Existing Conditions

## 2.1 Topography

The San Bernardino Valley region is bounded by the San Gabriel Mountains and the San Bernardino Mountains to the north, by the San Jacinto Mountains to the east, and by the Santa Ana Mountains and Pomona Valley on the south and west. The terrain of the Project varies between gently sloping plains to steep ridges and drainages in the foothills (SCE, 2013). Elevations within the Project range from approximately 1,050 to 3,000 (320 and 914 meters [m]) feet above mean sea level with both mountainous topography and relatively flat urban areas (SCE, 2013). In the eastern portion of the project area, within the Sonoran Desert, the topography is a mix of steep hills and low gradually sloping terrain including *bajadas* and few large ephemeral wash systems. The western portion of the project area includes both developed urban landscape and rugged terrain of the San Timoteo Badlands.

## 2.2 Land Use

The Project is located largely within an existing utility corridor in incorporated and unincorporated areas of Riverside and San Bernardino counties. Land uses in the project area include developed, disturbed, residential, agricultural, open space, and conservation lands. The Project also crosses privately owned lands (e.g., ranches, nurseries, and orchards), lands under local jurisdictions (e.g., local streets), the Morongo Reservation, and BLM lands. In addition, in Riverside County, portions of the project area are located within the conservation plan area boundaries for the WR-MSHCP and the CV-MSHCP.

## 2.3 Soils

A geographic information system (GIS) analysis of soils data available from the U.S. Department of Agriculture (USDA)/Natural Resources Conservation Service (NRCS) (USDA, 2016) was conducted to determine the soils composition in the project area. The results are presented in Table 2-1.

**Table 2-1. Soils in the Project Area**

| Soil Code | Soil Series Name | Area |
|---|---|---|
| ShF | Saugus sandy loam, 30 to 50 percent slopes | 390.50 |
| GmD | Gorgonio gravelly loamy fine sand, 2 to 15 percent slopes | 272.30 |
| TeG | Terrace escarpments | 242.60 |
| RaB2 | Ramona sandy loam, 2 to 5 percent slopes, eroded | 225.86 |
| HbA | Hanford sandy loam, 0 to 2 percent slopes | 218.78 |
| GnD | Gorgonio cobbly loamy fine sand, 2 to 15 percent slopes | 197.76 |
| CdC | Carsitas gravelly sand, 0 to 9 percent slopes | 177.31 |
| BaG | Badland | 155.52 |

**Table 2-1. Soils in the Project Area**

| Soil Code | Soil Series Name | Area |
|---|---|---|
| SgF2 | San Timoteo loam, 30 to 50 percent slopes, eroded | 153.08 |
| SmF2 | San Timoteo loam, 25 to 50 percent slopes, eroded | 143.99 |
| CkB | Carsitas fine sand, 0 to 5 percent slopes | 135.11 |
| HdD2 | Hanford cobbly coarse sandy loam, 2 to 15 percent slopes, eroded | 123.79 |
| MlD | Metz gravelly sandy loam, 2 to 15 percent slopes | 114.02 |
| GyC2 | Greenfield sandy loam, 2 to 8 percent slopes, eroded | 109.51 |
| HaC | Hanford coarse sandy loam, 2 to 9 percent slopes | 105.45 |
| HcC | Hanford coarse sandy loam, 2 to 8 percent slopes | 100.87 |
| CdE | Carsitas gravelly sand, 9 to 30 percent slopes | 99.29 |
| ScC | San Emigdio fine sandy loam, 2 to 9 percent slopes | 93.04 |
| SeC2 | San Emigdio fine sandy loam, 2 to 8 percent slopes, eroded | 86.47 |
| ScA | San Emigdio fine sandy loam, 0 to 2 percent slopes | 77.18 |
| SoD | Soboba cobbly sand, 2 to 15 percent slopes | 66.88 |
| BA | Badland | 62.60 |
| MaD | Myoma fine sand, 5 to 15 percent slopes | 62.10 |
| RaD3 | Ramona sandy loam, 8 to 15 percent slopes, severely eroded | 61.63 |
| CnE | Chuckawalla cobbly fine sandy loam, 9 to 30 percent slopes | 58.60 |
| RsC | Riverwash | 56.59 |
| TwC | Tujunga gravelly loamy sand, 0 to 8 percent slopes | 55.38 |
| SrE | Soboba cobbly loamy sand, 2 to 25 percent slopes | 54.74 |
| ChC | Carsitas cobbly sand, 2 to 9 percent slopes | 53.69 |
| SgC | San Emigdio loam, 2 to 8 percent slopes | 53.62 |
| RaC2 | Ramona sandy loam, 5 to 8 percent slopes, eroded | 46.36 |
| LR | Lithic Torripsamments-Rock outcrop complex | 46.35 |
| SgD2 | San Emigdio loam, 8 to 15 percent slopes, eroded | 43.42 |
| SsD | Soboba stony loamy sand, 2 to 15 percent slopes | 39.22 |
| TrC | Tujunga gravelly loamy sand, 0 to 9 percent slopes | 39.01 |
| RmE2 | Ramona sandy loam, 15 to 30 percent slopes, eroded | 36.17 |
| RaC3 | Ramona sandy loam, 5 to 8 percent slopes, severely eroded | 31.94 |
| RmC | Ramona sandy loam, 2 to 9 percent slopes, MLRA 19 | 31.35 |
| MgC | Metz coarse sandy loam, 2 to 9 percent slopes | 31.21 |
| SbC | San Emigdio gravelly sandy loam, 2 to 9 percent slopes | 28.41 |

**Table 2-1. Soils in the Project Area**

| Soil Code | Soil Series Name | Area |
|---|---|---|
| SmE2 | San Timoteo loam, 8 to 25 percent slopes, eroded | 28.05 |
| MeD | Metz loamy sand, channeled, 0 to 15 percent slopes | 24.80 |
| CnC | Chuckawalla cobbly fine sandy loam, 2 to 9 percent slopes | 24.02 |
| RaE3 | Ramona sandy loam, 15 to 25 percent slopes, severely eroded | 23.28 |
| SaD | San Emigdio sandy loam, 9 to 15 percent slopes | 23.14 |
| GtC | Greenfield sandy loam, 2 to 9 percent slopes | 23.11 |
| GyE2 | Greenfield sandy loam, 15 to 25 percent slopes, eroded | 23.08 |
| GyD2 | Greenfield sandy loam, 8 to 15 percent slopes, eroded | 22.72 |
| MaB | Myoma fine sand, 0 to 5 percent slopes | 20.85 |
| RA | Riverwash | 19.10 |
| Cg | Chino silt loam, drained, strongly saline-alkali | 17.15 |
| ReC2 | Ramona very fine sandy loam, 0 to 8 percent slopes, eroded | 16.28 |
| RaD2 | Ramona sandy loam, 8 to 15 percent slopes, eroded | 16.04 |
| RdE3 | Ramona sandy loam, moderately deep, 15 to 25 percent slopes, severely eroded | 15.56 |
| Ce | Chino silt loam, drained | 14.96 |
| MoC | Monserate sandy loam, 2 to 9 percent slopes | 13.95 |
| HeC2 | Hanford coarse sandy loam, deep, 2 to 8 percent slopes, eroded | 13.61 |
| SeD2 | San Emigdio fine sandy loam, 8 to 15 percent slopes, eroded | 12.76 |
| RuF | Rough broken land | 12.49 |
| HfD | Hanford sandy loam, 2 to 15 percent slopes | 12.40 |
| TvC | Tujunga gravelly loamy sand, 0 to 9 percent slopes | 12.30 |
| GlC | Gorgonio loamy sand, deep, 2 to 8 percent slopes | 11.58 |
| HcD2 | Hanford coarse sandy loam, 8 to 15 percent slopes, eroded | 10.90 |
| HaD | Hanford coarse sandy loam, 9 to 15 percent slopes | 10.10 |
|  | Tujunga loamy sand, channeled, 0 to 8 percent slopes | 9.74 |
| Cf | Chino silt loam, drained, saline-alkali | 9.07 |
| RfC2 | Ramona very fine sandy loam, moderately deep, 0 to 8 percent slopes, eroded | 5.63 |
| RaB3 | Ramona sandy loam, 0 to 5 percent slopes, severely eroded | 4.69 |
| Vr | Vista-Rock outcrop complex | 4.55 |
| TuB | Tujunga loamy sand, 0 to 5 percent slopes | 4.52 |
| MdC | Metz loamy sand, 2 to 8 percent slopes | 4.42 |
| GtA | Grangeville fine sandy loam, drained, 0 to 2 percent slopes | 4.08 |

**Table 2-1. Soils in the Project Area**

| Soil Code | Soil Series Name | Area |
|---|---|---|
| RdD2 | Ramona sandy loam, moderately deep, 8 to 15 percent slopes, eroded | 2.85 |
| PaC2 | Pachappa fine sandy loam, 2 to 8 percent slopes, eroded | 2.16 |
| RmD | Ramona sandy loam, 9 to 15 percent slopes | 1.80 |
| | Gravel pits and dumps | 1.77 |
| | Hanford loamy fine sand, 0 to 8 percent slopes | 1.24 |
| | Mottsville loamy sand, 2 to 8 percent slopes | 1.16 |
| GhC | Gorgonio loamy sand, 0 to 8 percent slopes | 0.98 |
| GP | Gravel pits | 0.69 |
| W | Water | 0.44 |
| Grand Total | | 4663.73 |

Source: NRCS/USDA 2016

Note:

For the purpose of analysis, the areas subject to Project disturbance plus a 100-foot buffer, and access roads plus a 50-foot buffer is the project area

# 2.4 Hydrology

In general, an area's hydrology is described according to its ability to retain water and direct surface flow. The project area drains to three separate traditionally navigable waters (TNWs): the Salton Sea (via Whitewater River and San Gorgonio River), the Santa Ana River (via San Timoteo Wash), and the San Jacinto River (SCE, 2013).

San Timoteo Wash is the most notable drainage in the western half of the project area. The creek flows into the Santa Ana River in the City of Colton. Drainages in the western half of the project area generally flow north or southwest into the Santa Ana River, Reche Canyon, Mission Channel, San Timoteo Wash, or San Timoteo Canyon, which are tributary to the Pacific Ocean, a TNW.

The San Gorgonio River at the west edge of the Morongo Reservation and the Whitewater River near Devers Substation are the two most prominent desert drainages in the eastern portion of the Project. These two desert rivers are tributary to the Salton Sea, located southeast of the City of Palm Springs. Drainages identified in the eastern part of the project area generally flow south or southeast into the San Gorgonio River, the Whitewater River, Super Creek, or Garnet Wash, each of which then flows into the Salton Sea. Only a small portion of the Project drains to the San Jacinto River.

The survey area is located within several hydrologic units (HU), detailed in Table 2-2.

**Table 2-2. Hydrologic Units in the Project Area**

| Hydrologic Information | USGS Description | Acres | Square Miles | Percent of Watershed in Project Area |
|---|---|---|---|---|
| Hydrologic Unit (HUC 8) | Santa Ana (18070203) | 1,084,236.64 | 1,694.12 | 100 |
| Hydrologic Area (HUC 10) | Middle Santa Ana River | 187,135.38 | 292.40 | 17.26 |
| Hydrologic Area (HUC 10) | Upper Santa Ana River | 162,538.51 | 253.97 | 14.99 |
| Hydrologic Area (HUC 10) | San Timoteo Wash | 77,969.16 | 121.83 | 7.19 |
| Hydrologic Unit (HUC 8) | San Jacinto (18070202) | 489,691.21 | 765.14 | 100 |
| Hydrologic Area (HUC 10) | Middle San Jacinto River | 99,380.84 | 155.28 | 20.29 |
| Hydrologic Unit (HUC 8) | Whitewater River (18100201) | 960,330.59 | 1,500.52 | 100 |
| Hydrologic Area (HUC 10) | San Gorgonio River | 129,362.14 | 202.13 | 13.47 |
| Hydrologic Area (HUC 10) | Headwaters Whitewater River | 115,724.39 | 180.82 | 12.05 |

Source: Garcia and Associates, 2015

# 2.5 Aquatic Resources

Several biological studies have been performed for the Project. The aquatic resource information is included in *Jurisdictional Delineation Report Supplement West of Devers Upgrade Project* (ICF, 2017). The aquatic resource information gathered to date is summarized below.

The field delineation identified 439 features (including wetlands and CDFW jurisdictional features) with a total area of approximately 292.40 acres within the project area (Table 2-3). Total area of potential waters of the United States subject to regulation by the USACE, SWRCB, and/or EPA within the project area is 167.22 acres, and includes 17.68 acres of wetlands and 149.51 acres of non-wetland waters of the United States. Additionally, the delineation identified 4.48 acres, including 0.20 acre wetland, of potential waters of the State, subject to SWRCB jurisdiction.

The field investigation also identified 288.12 acres of rivers, streams, and associated riparian vegetation (including 17.269 acres of wetlands) subject to CDFW jurisdiction.

**Table 2-3. Summary Table of Potential Jurisdictional Features in the Project Area**

| Type | USACE/SWRCB/EPA | SWRCB | CDFW |
|---|---|---|---|
| Wetland | 17.68 acres | 0.20 acre | 17.27 acres |
| Non-Wetland | 149.54 acres | 4.28 acres | N/A |
| Streambed and Associated Riparian Vegetation | N/A | N/A | 270.85 acres* |
| TOTAL | 167.22 acres | 4.48 acres | 288.12 acres |

Source: ICF, 2017

* This includes 92.01 acres of mapped CDFW jurisdiction located on the Morongo Reservation.

# 2.6 Vegetation Communities

Vegetation and land cover types within the project area that will be affected by Project construction include grassland/forbland, chaparral, coastal sage scrub, desert scrub, coast live oak woodland, riparian woodland, alluvial scrub, agricultural land, and disturbed/developed areas. Dominant plant species found in each of the vegetation communities within the project area that are related to this HMMP (i.e., associated with potentially impacted jurisdictional water features) are described in the following subsections, using the Holland (1986) system of community classification.

## 2.6.1 Riparian Woodland

Riparian woodlands are dominated by trees, and often extend linearly along stream courses. The two subtypes of riparian woodland that occur within the project area (mesic riparian woodland and arid riparian woodland) are described below. There are 135.1 acres of riparian woodland in the project area.

## 2.6.2 Mesic Riparian Woodland

Mesic riparian woodlands, which typically occur within Segments 1 through 4, are dominated by Freemont cottonwood (*Populus fremontii*) or red willow (*Salix laevigata*) and are found in the western portion of the Project.

### 2.6.2.1 Arid Riparian Woodland

Arid riparian woodlands, which typically occur in Segments 5 through 6, are dominated by desert willow (*Chilopsis linearis*) and are found in the Badlands and eastern portion of the Project.

### 2.6.2.2 Alluvial Scrub

The dominant plants in alluvial scrub on the Project route include mulefat (*Baccharis salicifolia*), scalebroom (*Lepidospartum squamatum*), cheesebush (*Ambrosia salsola*), and non-native grasses and forbs. There are 386 acres of alluvial scrub in the project area.

## 2.6.3 Emergent Marsh

All of the freshwater marsh features are present in areas where water is present year-round, or at least throughout most of the year. The source of the water varies, but is often areas where the hydrology has been altered by human activity. The vegetation in freshwater marsh features is typically dominated by tall perennial emergent herbaceous and/or low-growing woody vegetation. These features are often dominated by a monoculture of an emergent hydrophytic perennial species such as chairmaker's bulrush (*Schoenoplectus americanus*) or broadleaf cattail (*Typha latifolia*). There are 11.11 acres of emergent marsh in the project area.

## 2.6.4 Other Non-Tidal Wetlands

One freshwater seep and other non-tidal wetlands that do not have a classification were mapped within the project area and included within the emergent marsh acreage listed above. These "seasonal wetland" features are depressions that fill seasonally with precipitation, run-off, or irrigation water, then dry for a portion of the year. The depressions in the project area were often

associated with artificial features (e.g., ditches, canals, earthmoving, etc.). Freshwater seep and seasonal wetland features are typically vegetated with short annual or perennial hydrophytic herbs; species may be native or introduced, and the vegetation cover varies widely and may be patchy within a given feature. Commonly observed species in seasonal wetland features include mule fat (*Baccharis salicifolia*), clustered field sedge (*Carex praegracilis*), common spikerush (*Eleocharis macrostachya*), Baltic rush (*Juncus arcticus* var. *balticus*), perennial pepperweed (*Lepidium latifolium*), and Italian ryegrass (*Lolium perenne*).

## 2.6.5 Riparian Wetlands

These features were classified as follows (Holland, 1986): arroyo willow riparian forest, Fremont cottonwood forest, mulefat scrub, red willow thickets, and southern willow scrub (6.6 acres total). Some areas of freshwater marsh are also classified as riparian if they were closely associated with a stream. The riparian forest features (arroyo willow riparian forest, Fremont cottonwood forest, and red willow thicket) are located adjacent to various drainages, including San Timoteo Wash, San Timoteo Canyon, San Gorgonio River, and a landfill drainage sump pond. The wetland hydrology supporting these features varies. Many of the riparian forest features were located adjacent to streams or washes that supplied their water. However, sometimes the features are supplied by constructed sources; one riparian forest wetland feature adjacent to the San Gorgonio River was actually fed by an outlet pipe coming from a well pump house owned by the City of Banning. The water for another feature was supplied by a constructed sump pond.

Riparian forests typically have a moderately to very dense overstory of riparian trees and tall shrubs. However, these wetland features may also support a number of hydrophytic shrub and herb species as well. Depending on the type of forest, hydrophytic dominants included red willow (*Salix laevigata*) and arroyo willow (*Salix lasiolepis*); Fremont's cottonwood (*Populus fremontii ssp. fremontii*) and Washington fan palm (*Washingtonia robusta*) are also commonly present. The shrub and understory layers may contain giant reed (*Arundo donax*), mulefat, tall flatsedge (*Cyperus eragrostis*), barnyardgrass (*Echinochloa crus-galli*), duckweed (*Lemna species*), perennial pepperweed (*Lepidium latifolium*), sandbar willow (*Salix exigua*), broadleaf cattail, and stinging nettle (*Urtica dioica*).

## 2.6.6 Perennial Stream/Rivers

Eight perennial stream/river features (with total area of 35.73 acres) were mapped in the project area, often in the vicinity of Whitewater River and San Timoteo Wash. Whitewater River is a large sandy and cobbly wash with flows that appear to be perennial. This feature is tributary to the Salton Sea. Multiple low-flow channels are present in its alignment, one of which was wetted during surveys. The ordinary high water mark (OHWM) of this feature was defined by changes in average sediment texture. The OHWM may be currently lower than historically due to flows altered by the development of an aggregate mine. Mudcracks, drift/debris, presence of a bed and bank and benches served as indicators for the active floodplain, which is a network of low-flow channels with terraces and islands. Riparian vegetation is sparse throughout.

A small portion of San Timoteo Wash also intersects the project area. Much of this wash is a dominant perennial stream, which meanders in close proximity to much of the western portion of the project area. This feature is a tributary to the Santa Ana River. The low-flow channel defined the OHWM, but no active floodplain was present in the adjacent area. Indicators of the OHWM and low-flow channel included the presence of a bed and bank, and a change in vegetation species and

vegetation cover. Standing water was present at the time of survey, and the stream was vegetated by cattails and arroyo willow.

## 2.6.7 Intermittent Stream/Rivers

Twenty-two intermittent stream/river features, with total area of 37.38 acres, were mapped within the project area. These intermittent stream/river features have a bed and bank, and appear to carry flows for several months of the year. These features appear to be fed by groundwater in the spring and early summer in addition to carrying surface waters during the rainy season. These features do not appear to carry water year-round.

## 2.6.8 Ephemeral Streams/Rivers

A total of 398 ephemeral stream/river features (total area 204.26 acres) were mapped within the project area (see Appendix C for details). Most of the ephemeral streams and rivers mapped in the project area have a native surface bed, bank, and channel with an OHWM. These ephemeral streams and rivers do not appear to carry water from groundwater sources; instead all flows appear to arise from precipitation and local run-off, with occasional releases from other sources (e.g., irrigation flows and/or overflow sources). Typically the flows in these features appear to have a short-term duration (a few days or weeks). In the eastern portion of the project area, in the Sonoran Desert, most of the ephemeral streams are desert washes, some of which are located on alluvial fans. Many of the streams dissipate into uplands and may be considered isolated. In the western portion of the project area, many of the native surface ephemeral streams are located in valley areas between steep hills. The hydrology of many of the ephemeral stream features has been altered by the roads (both paved and unpaved) which intersect these channels. Some channels dissipate into sheet-flow along roads, while others are channelized along sections of roads or cross roads to continue as channels on the other side.

## 2.6.9 Pond/Lake

A total of eight ponds and small lakes/reservoirs, with a combined area of 2.33 acres, were mapped within the project area. These were constructed features built in uplands, and include fishing ponds and regularly filled detention basins. All pond/lake features were considered to be potentially jurisdictional, except for features that appeared to be constructed and isolated.

# Chapter 3
# Mitigation for Impacts to Jurisdictional Waters

Garcia and Associates conducted a delineation of jurisdictional waters and wetlands for the Project from July 2014 to January 2015. Subsequent to the 2015 delineation effort a supplemental jurisdictional delineation was conducted by ICF in July 2017 (ICF, 2017). All features meeting the USACE/SWRCB and CDFW guidance criteria were delineated. Potential impacts of the Project include permanent impacts associated with construction of new structures (e.g., towers and supporting structures), access and spur roads and drainage modifications, and temporary impacts associated with construction of temporary access roads and work areas (e.g., pulling sites, wire stringing areas, temporary construction areas around structures, and staging areas) and maintenance or modification of existing access roads that might be needed by construction vehicles accessing work sites. Descriptions of these activities are provided in Chapter 1, "Introduction." Features that were considered to be potentially affected are described below, and the final jurisdictional impacts are described.

A total of 206 drainages would be temporarily and/or permanently affected. Of these 206 affected streams, 41 will be affected by grading or vegetation trimming along existing access roads exclusively.

Impacts related to construction and operation of the Project include permanent impacts to 0.96 acre of waters of the United States and State subject to regulation by USACE, SWRCB, and EPA, and 1.04 acres of lake and streambed resources subject to regulation by CDFW. Only 0.15 acre of wetlands is expected to be permanently impacted. In addition, the Project will result in temporary impacts to 4.59 acres of waters of the United States and State subject to regulation by USACE, SWRCB, and EPA , and 5.33 acres of CDFW lake and streambeds. Affected features support the following vegetation communities: chaparral, riparian forest/woodland, riparian scrub, alluvial scrub, riparian scrub, and grass- and forblands.

In general, compensatory mitigation is proposed at ratios negotiated during permit issuance discussions for all affected aquatic and riparian features, excluding temporary impacts to concrete-lined features and impacts to un-vegetated features completely within existing access road boundaries. USACE, SWRCB, and CDFW provided agency-specific mitigation ratio requirements in the issued NWP-12, Water Quality Certification, and Streambed Alteration Agreement. Table 3-1 summarizes agency impacts and mitigation requirements. Permitted impacts and mitigation requirements for the Project for waters regulated by USACE, SWRCB, and CDFW are further detailed in Tables 3-2, 3-3, and 3-4, respectively.

## 3.1 Onsite Restoration/Revegetation of Temporary Impacts

### 3.1.1 Mitigation Site Description

The restoration/revegetation of areas disturbed by temporary Project construction will occur within jurisdictional areas throughout the project area. Temporary impacts associated with the Project will be revegetated to restore the disturbed areas to pre-construction conditions and

contours and to blend with existing vegetation communities adjacent to the site. A maintenance and monitoring program will also be implemented as presented in Chapter 5 *Implementation*.

#### 3.1.1.1 Mitigation Objectives

The goal for onsite mitigation for temporary impacts to jurisdictional areas is to restore native vegetation communities such that the extent and value of the habitat are fully replaced. Temporary impacts will be mitigated onsite by application of a native seed mix and/or planting native container plants and/or cuttings, as appropriate. Suggested seed and container palettes are provided in Tables 5-1 through 5-3.

The goals for onsite mitigation for jurisdictional areas overlap with the goals for mitigating impacts of the Project on other resources such as special-status species habitats and vegetation communities. Therefore, restoration of jurisdictional areas will occur in conjunction with restoration for impacts to these other resources. Moreover, mitigation for waters of the United States overlap and/or are encompassed within CDFW jurisdictional waters. Therefore, impact and mitigation requirements (where mitigation ratios are the same) will overlap.

#### 3.1.1.2 Ownership Status

Onsite mitigation areas will be located within the SCE ROW, franchise, and areas for which SCE has obtained temporary construction easements.

#### 3.1.1.3 Installation Schedule

Onsite mitigation will begin in the fall following completion of construction. To document the required restoration schedule, SCE will track the start and end dates of construction within jurisdictional waters via the contractor's 3-month look-ahead schedule and/or biological monitoring logs. The tracking table will be provided as an appendix to the annual monitoring report or restoration as-built report.

# 3.2 Offsite Mitigation for Permanent and Temporary Impacts (Compensatory Mitigation)

## 3.2.1 Compensatory Mitigation Strategy Overview

Compensatory mitigation to meet the requirements of the CDFW 1600 SAA, USACE 404, and SWRCB 401 permits will be implemented by:

- Purchasing enhancement or restoration/rehabilitation credits at an USACE-approved In-Lieu Fee program (ILF), within the appropriate ILF Program's service areas. The ILF Programs utilized will be:
  - Inland Empire Resource Conservation District (IERCD) ILF Program
  - Riverside-Corona Resource Conservation District (RCRCD) ILF Program
  - Coachella Valley Conservation Commission (CVCC) ILF Program

- Implementing compensatory mitigation strategies required for the federal and state species take permits that protect, enhance or restore water features will also serve as appropriate mitigation for the CDFW SAA.

**Table 3-1. Compensatory Mitigation Requirements**

| | Impacts | | Mitigation | |
|---|---|---|---|---|
| | **Permanent[1]** | **Temporary[2]** | **RCRCD** | **CVCC** |
| USACE | 0.96 | 4.59 | 0.61 | 1.26 |
| SWRCB | 0.75 | 2.70 | 0.60 | 1.01 |
| CDFW[3] | 1.04 | 5.33 | 4.40 | 5.77 |

[1] Includes permanent impacts to wetlands.

[2] All temporary impacts will be restored to pre-project conditions upon completion of project construction.

[3] Excludes Impacts located on Morongo Reservation lands.

### 3.2.1.1 Financial Assurances

As described above, SCE proposes to purchase restoration/rehabilitation credits from the RCRCD and CVCC ILFPs to mitigate permanent impacts prior to impacting waters of the United States and State as well as CDFW streambed resources. In accordance with Special Condition 2 of the USACE Section 404 Permit, SCE will provide proof of in-lieu fee credit purchase in the form of a letter or form signed by the program sponsor, with the permit number and statement indicating the number and resource type of credits that have been secured by the sponsor. At a minimum, SCE will provide proof of purchase of 0.61 intermittent stream rehabilitation credits from RCRCD and 1.26 intermittent stream establishment credits from CVCC prior to work in waters of the U.S.

### 3.2.1.2 Implementation

An USACE-approved ILF Program utilizes a compensation planning framework to select, secure, and implement aquatic resource restoration, establishment, enhancement, and/or preservation activities which supports a watershed approach to compensatory mitigation. Prior to establishment an ILF Program undergoes rigorous regulatory review. Once established and the enabling instrument executed advance credits are released in order to fund in-lieu fee projects. As in-lieu fee project sites are identified and secured, the sponsor develops site specific mitigation plans that include all applicable items as listed in 33 CFR 332.4(c)(2) through (14). Each ILF Program mitigation site is unique to its site-specific ecological functions and values. These mitigation site plans and all other mitigation documents are publicly available through the Regulatory In-Lieu Fee and Bank Information Tracking System (www.ribits.usace.army.mil).

SCE will purchase the appropriate (refer to Table 3-1) amount and type of ILF credits from RCRCD and CVCC based on agency permit requirements. In general all aquatic resource impacts requiring mitigation and occurring in the Whitewater River Watershed will be mitigated at CVCC ILF Program. whereas those in the Santa Ana River Watershed will be mitigated at RCRCD ILF Program. Once the credit(s) have been purchased, the mitigation sponsor will supply SCE and USACE the Bill of Sale demonstrating the purchase was completed. SCE will then forward the Bill of Sale to the appropriate permitting agencies.

For compensatory mitigation not included in the ILF program credit purchases, SCE will obtain CDFW approval of a permittee responsible mitigation strategy. SCE will work with an entity that is CDFW approved to hold conservation easements and implement CDFW mitigation. The mitigation sponsor will develop and implement: maintenance and monitoring plans specific to the enhanced or restored water features. The plans will include, but not limited to; objectives, baseline information, performance standards, monitoring requirements, long-term management and adaptive management of the mitigation site.

SCE is currently working with IERCD on providing compensatory mitigation for impacts generated under the under the Western Riverside Multiple Species Habitat Conservation Plan (MSHCP) *Determination of Biologically Equivalent or Superior Preservation (DBES) for Riverine/Riparian Areas, Vernal Pools and Associated Species.* RCA has identified a 356-acre property (Holmes) as a high conservation priority to incorporate in the WR MHSCP Reserve system. The Holmes property includes a large drainage system, consisting of riparian and riverine resources. In addition to the acquisition fee, SCE will also fund enhancement or restoration activities needed for the riparian/riverine portion of the mitigation requirement. The water features enhanced or restored within this site will also serve as mitigation for the CDFW SAA.

Prior to land acquisition, SCE will establish a letter of credit against the full cost of the mitigation at the Holmes site demonstrating that SCE is committed to completing the entire mitigation requirement. Once IERCD has completed the acquisition, SCE will enter into a Purchase Sale Agreement and open an escrow for the all-inclusive cost of the RCA mitigation acres needed to complete the WR MHSCP DBES and CDFW SAA mitigation. The per acre costs will include an endowment to fund the short term interim enhancement or restoration activities as well as the long term land management activities.

SCE is working with Wildlands to acquire mitigation lands to compensate for impacts to federal and state listed species. For the conserved lands that have suitable water features, Wildlands will analyze the water features for their mitigation value and acquire CDFW approval to compensate for impacts generated in the CDFW SAA. SCE will work with Wildlands to provide the necessary items for CDFW review and approval to complete the 1600 SAA mitigation requirement. The final step of completing the mitigation will be recording the conservation easement.

## 3.2.2 Regulatory Compliance

Compensatory mitigation is implemented to meet the conditions and measures stipulated by CDFW SAA, USACE 404, and SWRCB 401 permits. Descriptions of agreements between SCE and these agencies are provided in the specific documents. Once the ILF Programs credit are purchased, SCE will provide a Bill of Sale to the appropriate regulatory agencies which will compete the mitigation requirement.

For CDFW mitigation strategies outside of participating in an ILF Program, SCE will work with the CDFW-approved entity to provide the necessary items for CDFW review and approval to complete the mitigation requirement. The final step of completing the mitigation will be recording the conservation easement, in which the recordation will be provided to CDFW completing SCE's mitigation requirement.

### 3.2.2.1 USACE Requirements

As specified in Special Condition 2 of the February 28, 2018 NWP 12 verification for the Project, SCE is required to purchase a total of 1.87 acres of ILFP credits consisting of 0.60 acres of stream rehabilitation credits from the RCRCD ILFP and 1.27 acres of stream establishment credits from the CVCC ILFP. Offsite mitigation is not required to compensate for temporary impacts to waters of the United States. Using the 12501-SPD Regulatory Program Standard Operating Procedure for Determination of Mitigation Ratios, USACE determined permanent impacts to streams and non-tidal wetland waters within the Santa Ana River Watershed shall be mitigated at 1.33:1 and 2.75:1 ratios, respectively, through the purchase of stream rehabilitation credits from the RCRCD ILFP. Additionally, permanent stream impacts within the Whitewater River Watershed shall be mitigated at 1.89:1 ratio through the purchase of stream establishment credits from the CVCC ILFP. Table 3-2 below describes the permanent and temporary impacts to waters of the United States and the required compensatory mitigation.

USACE requires that compensatory mitigation for impacts to waters of the United States be planned and documented in accordance with section 332.4 (c) of the Mitigation Rule. As specified above, purchasing credits form an approved in-lieu fee program with the RCRCD and CVCC would be used to meet the requirements. Therefore, preparation of a conceptual mitigation plan or detailed mitigation plan for permanent impacts is not anticipated.

**Table 3-2. USACE Detailed Mitigation Requirements**

| | Santa Ana River Watershed | | | Whitewater River Watershed | | |
|---|---|---|---|---|---|---|
| **Resource** | **Perm. Impact** | **Mitigation Ratio** | **Total Mitigation [a]** | **Perm. Impact** | **Mitigation Ratio** | **Total Mitigation [b]** |
| Streams | 0.14 | 1.33 : 1 | 0.19 | 0.67 | 1.89 : 1 | 1.26 |
| Wetland | 0.15 | 2.75 : 1 | 0.42 | -- | -- | 0 |
| Total | 0.29 | n/a | 0.61 | 0.67 | n/a | 1.26 |

[a] Impacts occurring in the Santa Ana River watershed will be mitigated through the purchase of mitigation credits from the RCRCD ILFP.

[b] Impacts occurring in the Whitewater River watershed will be mitigated through the purchase of mitigation credits from the CVCC ILFP.

### 3.2.2.2 SWRCB Requirements

Condition I.4. of the March 1, 2018 401 Water Quality Certification issued by the SWRCB outlines specific mitigation requirements to compensate for unavoidable permanent impacts to 0.75 acre of waters of the State. Specifically, SCE will purchase a total of 0.60 acre of stream channel rehabilitation credits from the RCRCD ILFP and 1.01 acres of stream establishment credits from the CVCC ILFP. Additional offsite mitigation in not required to compensate for 2.70 acres of temporary impacts to waters of the State. Table 3-3 below describes the permanent and temporary impacts to waters of the State and the required compensatory mitigation.

**Table 3-3. SWRCB Detailed Mitigation Requirements**

| | Santa Ana River Watershed | | | Whitewater River Watershed | | |
|---|---|---|---|---|---|---|
| Resource | Perm. Impact | Mitigation Ratio | Total Mitigation [a] | Perm. Impact | Mitigation Ratio | Total Mitigation [b] |
| Stream Channel | 0.14 | 1.33 : 1 | 0.19 | 0.46 | 2.20 : 1 | 1.01 |
| Wetland | 0.15 | 2.75 : 1 | 0.41 | -- | -- | 0 |
| Total | 0.29 | n/a | 0.60 | 0.46 | n/a | 1.01 |

[a] Impacts occurring in the Santa Ana River watershed will be mitigated through the purchase of mitigation credits from the RCRCD ILFP.

[b] Impacts occurring in the Whitewater River watershed will be mitigated through the purchase of mitigation credits from the CVCC ILFP.

## 3.2.2.3 CDFW Requirements

Tables 3-4a and 3-4b describe the permanent and temporary impacts to CDFW streambed and associated riparian resources and the required compensatory mitigation. The Streambed Alteration Agreement requires permanent and temporary impacts to be mitigated offsite through the purchase of 10.16 credits of steam rehabilitation credits from an approved ILFP. Specifically, SCE will purchase 5.77 acres of credit from the CVCC ILFP (see Table 3-4a) and 4.39 acres of stream rehabilitation credits from the RCRCD ILFP (see Table 3-4b).

**Table 3-3a. CDFW Detailed Offsite Mitigation Requirements – Coachella Watershed**

| | Permanent Streambed Impacts | | | Temporary Streambed Impacts | | | Total Mitigation at CVCC ILFP |
|---|---|---|---|---|---|---|---|
| Habitat Type | Perm. (acres) | Mitigation Ratio | Mitigation (acres) | Temp. (acres) | Mitigation Ratio | Mitigation (acres) | |
| Coastal Sage Scrub | 0.0416 | 3:1 | 0.1248 | 0.1254 | 2:1 | 0.2508 | 0.3756 |
| Creosote bush scrub | 0.0480 | 3:1 | 0.144 | 0.5331 | 2:1 | 1.0662 | 1.2102 |
| Riparian/wash scrubland – Alluvial | 0.0542 | 3:1 | 0.1626 | 0.1323 | 2:1 | 0.2646 | 0.4272 |
| Scale broom scrub | 0.0523 | 3:1 | 0.1569 | 1.5030 | 2:1 | 3.0060 | 3.1629 |
| Developed/Disturbed | 0.0002 | 3:1 | 0.0006 | 0.0843 | 1:1 | 0.0843 | 0.0849 |
| Unvegetated | 0.0005 | 3:1 | 0.0015 | 0.5023 | 1:1 | 0.5023 | 0.5038 |
| Total Offsite Mitigation | 0.1968 | n/a | 0.5904 | 2.8804 | n/a | 5.1742 | 5.7646 |

**Table 3-3b. CDFW Detailed Offsite Mitigation Requirements – Santa Ana River, San Gorgonio, San Timoteo, and Colton-Rialto Watersheds**

| Habitat Type | Permanent Streambed Impacts | | | Temporary Streambed Impacts | | | Total Mitigation at RCRD ILFP |
|---|---|---|---|---|---|---|---|
| | Perm. (acres) | Mitigation Ratio | Mitigation (acres) | Temp. (acres) | Mitigation Ratio | Mitigation (acres) | |
| Catclaw acacia thorn scrub | 0.0048 | 3:1 | 0.0144 | -- | -- | -- | 0.0144 |
| Chaparral/ Southern Mixed Chaparral | 0.0607 | 3:1 | 0.1821 | 0.3130 | 1:1 | 0.3130 | 0.4951 |
| Coastal Sage Scrub | 0.1217 | 3:1 | 0.3651 | 0.5399 | 1:1 | 0.5399 | 0.905 |
| Coast live oak woodland | 0.0086 | 3:1 | 0.0258 | 0.0024 | 1:1 | 0.0024 | 0.0282 |
| Creosote bush scrub | 0.0577 | 3:1 | 0.1731 | 0.0885 | 1:1 | 0.0885 | 0.2616 |
| Freshwater Marsh | -- | 3:1 | -- | 0.0022 | 1:1 | 0.0022 | 0.0022 |
| Mulefat Scrub | 0.0027 | 3:1 | 0.0081 | -- | -- | -- | 0.0081 |
| Riparian/ wash scrubland | 0.2222 | 3:1 | 0.6666 | 0.2992 | 1:1 | 0.2992 | 0.9658 |
| Riparian woodland | 0.0856 | 3:1 | 0.2568 | 0.3207 | 1:1 | 0.3207 | 0.5775 |
| Southern Arroyo Willow Riparian Forest | -- | 3:1 | -- | 0.0001 | 1:1 | 0.0001 | 0.0001 |
| Wetland | 0.1523 | 3:1 | 0.4569 | 0.3018 | 1:1 | 0.3018 | 0.7587 |
| Active Agriculture | 0.0072 | 3:1 | 0.0216 | 0.0081 | 0:1 | 0 | 0.0216 |
| Developed/Disturbed/ Grassland | 0.1064 | 3:1 | 0.3192 | 0.3653 | 0:1 | 0 | 0.3192 |
| Forbland | 0.0063 | 3:1 | 0.0189 | 0.1355 | 0:1 | 0 | 0.0189 |
| Unvegetated | 0.0010 | 3:1 | 0.003 | -- | -- | -- | 0.003 |
| Other | 0.0035 | 3:1 | 0.0105 | 0.0748 | 0:1 | 0 | 0.0105 |
| Total Offsite Mitigation | 0.8407 | n/a | 2.5221 | 2.4515 | n/a | 1.8678 | 4.3899 |

Chapter 4
# Responsible Parties

## 4.1 Southern California Edison

SCE will be the owner/operator, as well as responsible for installation and monitoring, of the Project. SCE is also responsible for mitigating Project impacts. SCE may contract a Restoration Contractor (RC) to implement onsite habitat restoration activities, including maintenance work. SCE may also contract a Restoration Ecologist (RE) to oversee the habitat restoration work and conduct monitoring and reporting. In addition, SCE may assign one of its onsite personnel to coordinate with the RE during implementation of restoration/revegetation activities by undertaking such tasks as developing acceptable access points and conducting any required safety training for installation, maintenance, or monitoring personnel. SCE will have final review and acceptance over all work on the Project.

**Southern California Edison**
2244 Walnut Grove Ave
Rosemead, CA 91770
Contact: Setal Prabhu

### 4.1.1 California Public Utilities Commission

The FEIR was prepared by the CPUC (2015) pursuant to the California Environmental Quality Act (CEQA) guidelines outlined in Title 14 of the California Code of Regulations Section 15000 et seq. as amended. CPUC is the lead State agency for the Project under CEQA. Relative to wetlands and waters, CPUC is responsible for overseeing SCE's compliance with MM VEG-3a.

**California Public Utilities Commission**
505 Van Ness Avenue
San Francisco, California 94102
Contact: Billie Blanchard

### 4.1.2 Bureau of Land Management

The FEIS was prepared by the BLM (2016a) in accordance with the requirements of the National Environmental Policy Act (NEPA) of 1969, Title 42 of the United States Code (U.S.C.) Sections 4321 to 4370d as implemented by the Council on Environmental Quality Regulations, Title 40 of the Code of Federal Regulations (CFR) Parts 1500 to 1508, and BLM's NEPA guidance handbook (H-1790-1). BLM is the lead federal agency under NEPA. Relative to wetlands and waters, BLM is responsible for overseeing SCE's compliance with MM VEG-3a.

**Bureau of Land Management**
Mark Demaio_____
_____
Contact: mdemaio@blm.gov

### 4.1.3 Regulatory Agencies

**California Department of Fish and Wildlife**

CDFW issued a fully executed Streambed Alteration Agreement (Notification No. 1600-2017-0064-R6) on April 10, 2018. CDFW is responsible for overseeing SCE's compliance with the conditions of that agreement.

**California Department of Fish and Game, Inland Deserts Region**
3602 Inland Empire Blvd., Suite C-220
Ontario, California 91764
Contact: Kimberly Freeburn

**U.S. Army Corps of Engineers**

USACE verified the Project under NWP 12 (Permit No. SPL-2017-00208) for the Project on February 28, 2018. USACE is responsible for overseeing SCE's compliance with the special conditions of verification.

**U.S. Army Corps of Engineers, Los Angeles District, Regulatory Division**
915 Wilshire Blvd, 13th Floor
Los Angeles, California 90017
Contact: Lauren Sullivan

**State Water Resources Control Board**

The SWRCB issued a 401 Water Quality Certification (Certification No. SB17003IN) for the Project on March 1 2018. The SWRCB is responsible for overseeing SCE's compliance with the conditions of its certification.

**State Water Resources Control Board**
1001 I Street, 15th Floor
Sacramento, California 95814
Contact: Clifford Harvey

**U.S. Environmental Protection Agency**

EPA certified the Project under EPA Programmatic Certification #0418 on April 19, 2017. The Project meets the general and specific conditions of the EPA 401 Certification.

**U.S. Environmental Protection Agency, Region 9**
75 Hawthorne Street
San Francisco, California 94105
Contact: Elizabeth Goldmann

## 4.2 Restoration Ecologist

A qualified RE will assist SCE by monitoring implementation of the onsite habitat mitigation and monitoring effort as described in this Plan, including oversight of maintenance activities and collection of maintenance data. The RE may also be responsible for providing oversight or conducting the maintenance and biological monitoring, and prescribing contingency and/or remedial measures necessary to achieve onsite restoration success as described in this Plan. In

addition, the RE will act as a liaison between SCE and the RC or other parties involved in the Project as appropriate.

### 4.2.1 Qualifications of the Restoration Ecologist

The RE shall demonstrate the following minimum qualifications:

- A minimum of 5 years of experience in the implementation of Southern California habitat restoration projects, and
- Experience managing projects of a similar size and complexity as the Project.

In addition, the RE shall provide examples of projects that achieved success standards and were deemed complete as required by resource agencies.

## 4.3 Restoration Contractor

An RC will be contracted by SCE to implement the HMMP and perform restoration and revegetation activities appropriately to achieve success standards. The RC will be responsible for preparing the site for seeding and planting, performing non-native plant species abatement/eradication, as well as providing maintenance of the site for a period of 5 years. If success standards are not achieved by the close of the 5-year maintenance and monitoring period, the RC will perform any remedial measures necessary to achieve success standards at his or her own expense, including providing RE monitoring services. The foreman will have a thorough understanding of the Project plans, schedule, and specifications as well as applicable laws, ordinances, and policies.

### 4.3.1 Qualifications of the Restoration Contractor

The RC shall demonstrate the following minimum qualifications:

- A minimum of 5 years of experience in the implementation of Southern California habitat restoration projects.
- Successful completion of at least three habitat restoration projects with a minimum size of 30 acres.
- Experience implementing projects of a similar size and complexity as the Project.

# Chapter 5
# Implementation

The following chapter addresses the implementation, establishment, maintenance and monitoring, and performance of the onsite restoration of the temporarily impacted waters of the United States and State subject to regulation by USACE, SWRCB, and EPA, as well as lake and streambed resources subject to regulation by CDFW.

## 5.1 Trash and Debris Removal

Following completion of Project construction activities, biologists with experience in habitat restoration will manage the removal of any trash and debris from the temporary disturbance areas to be restored. This includes all human-made materials and construction debris that may be left onsite. Organic materials, including wood debris, plant material, straw, and sand, may be incorporated into the site soils prior to soil de-compaction. However, this will be evaluated case-by-case to ensure that the fundamental characteristics of the underlying soil are not altered to favor non-native over native plant species.

## 5.2 Weed Removal

Weed-control measures will be implemented during post-construction restoration where necessary in accordance with the *2008–2012 National Invasive Species Management Plan* (National Invasive Species Council, 2008) regulations. Control measures may include various treatment methods. Physical removal and chemical control of weedy species will be employed as required and are described in the Project's IWMP (CH2M, 2016b).

### 5.2.1 Physical Removal Methods

Physical weed control methods are labor intensive and will generally be used to control relatively small populations of weeds, or used in sensitive habitats where wildlife may be indirectly affected by weed removal activities. The weed control methods may provide an advantage in native habitats where desirable species are left in place while removing surrounding weeds. Recommended physical control methods are as follows:

- Hand pulling will be used to remove localized and discrete populations of annual and biennial species that have a single-root mass prior to seed set, and to minimize soil disturbance. Cutting will be used to remove shrub and tree species. This method will require follow-up herbicide applications to kill the root system and prevent re-sprouting.
- Mechanical removal will be used to remove weed infestations from large areas where few or no native plant species are present. This method will use a mower, weed whacker, or skid steer with implements for potholing, tilling, or other means of minor excavation.

### 5.2.2 Chemical Weed Removal Methods

Chemical means of controlling weeds consist of the application of herbicides. Herbicides can be a very effective method in controlling weed species by killing or inhibiting plant growth. The

appropriate method of chemical application varies based on species and also with the degree of infestation, time of year, temperature, and environmental conditions. Herbicides will be used to control weeds by a qualified applicator licensed by the State of California Department of Pesticide Regulation, and only where directed by biologists, experienced in habitat restoration. Only herbicides approved by the State of California and BLM for use on public lands will be used within or adjacent to the Project area. The environmental risks of using herbicides will be minimized by using marker dyes to make the herbicide visible in areas where it has been applied. Higher visibility is desirable because it allows personnel to more effectively protect themselves against contamination, prevents unintended multiple application to a particular area or plant, ensures complete coverage of the target area and plants, and informs personnel of overspray and wind-drift issues, which protects non-target plant.

# 5.3 Topsoil Salvage

In some areas, topsoil salvage may be appropriate and feasible to preserve the existing seed bank. This seed has advantages over subsequently sown seed in that it is preconditioned to the existing soil environment. However, topsoil salvage may not be feasible at many sites.

The following are the criteria for identifying potentially suitable sites for topsoil salvage:

- Location is a previously undisturbed area
- Construction activities include underground trenching, heavy grading, or other excavation activities where natural soil horizons are substantially disrupted
- Salvage activities can be executed safely and feasibly (topographic limitations)
- Stockpile locations can be identified in safe locations within existing approved disturbance areas and in compliance with other environmental and visual restrictions
- No post-construction disturbance activities such as O&M activities that would cause future disturbance to the site are anticipated

Topsoil salvage will not occur under the following circumstances:

- Slopes greater than 25 percent
- Locations where ground disturbing activities are limited due to environmental resources (e.g., sensitive habitats, cultural resources)
- Locations with high densities of non-native or invasive plant species
- Locations with low availability of substrate material (thin soils or rocky)
- Topographical or geographical constraints that preclude safe execution of construction activities

The top 2 inches of desert soils generally contain the majority of seeds, nutrients, cryptogrammic organisms, and organic matter (Scoles-Sciulla and DeFalco, 2009). However, the ideal depth of topsoil to be salvaged may vary based on site-specific conditions. For occupied special-status plant habitats, a Restoration Ecologist will determine the appropriate amount of topsoil to be removed and stockpiled, then returned to the surface when earthwork is complete.

Topsoil will be carefully removed by an experienced operator using a dragline, excavator, scraper, or dozer and will be stockpiled in uncompacted piles less than 4 feet tall. Stockpiled soils will be placed within temporary disturbance areas. Topsoil stockpiles will be stabilized by spraying with a tackifier (soil stabilizer) or covered with a permeable natural material, such as jute or coconut fiber blankets, as consistent with SWPPP requirements. To minimize compaction, no equipment will be allowed to travel over or park on the salvaged soil stockpiles.

Care will be taken to limit potentially adverse effects of stockpiling topsoil. For example, stockpiling has been shown to reduce organic carbon (especially at the surface), and reduce microbial activity and mycorrhizal inoculum potential for vesicular-arbuscular mycorrhizae (Bainbridge, 2007). Wet stockpiles show a greater reduction of vesicular arbuscular mycorrhizae propagules than dry stockpiles (Bainbridge, 2007). Therefore, topsoil stockpiles will be maintained in a dry condition as much as possible. Nutrients, organic matter, and the seed bank will be diluted if topsoil is mixed with subsoil material, so care will be taken to ensure a minimum thickness of topsoil is removed and stockpiled, and that topsoil remains segregated from subsoil.

If soils are stockpiled for extended periods, establishment of a cover crop of perennial native grasses and forbs will be considered to help maintain the viability of soil fungi and microbial communities. Soil stockpiles will be monitored for weeds and weeds will be removed if present. Grubbed vegetation not used as vertical mulch may be included in the stockpiled soil. Once stockpiled, soils will not be disturbed until they are re-spread to initiate revegetation of disturbed areas.

## 5.4 Stream Channel Recontouring

Sites that require grading will be contour-graded as close as possible to the pre-impact conditions prior to implementation of restoration activities to restore the form of function of wetland and channel features. In areas where newly graded slopes meet the existing landform, the graded slope will transition in a manner that appears natural (that is, contours will be smoothed rather than end abruptly at existing contours).

## 5.5 Soil Decompaction

De-compaction of soils following construction activities is anticipated to be required for temporary disturbance areas that have been subjected to prolonged disturbance (laydown areas, temporary roads, etc.). De-compaction of soils will improve water infiltration and allow for plant root growth in restoration areas. These project areas will be de-compacted by ripping/cross-ripping to a depth of up to 12 inches (highly compacted areas such as temporary roads or crane pads may require deeper ripping), ideally, when possible with ripper teeth mounted to the back of a bulldozer, or disking and scarifying less-compacted surfaces using farming implements such as tractor-mounted rototillers. For some sites, de-compaction may be limited by the SWPPP or other constraints. If such areas were dominated by native plants (including rhizomatous plants) prior to construction, soils may be lightly ripped in order to retain their abundance and contribute to the restoration.

## 5.6 Erosion Control

Temporary disturbance areas will be monitored for erosion by the Project SWPPP consultant. Any erosion issues observed by the restoration contractor shall be immediately reported to the SWPPP consultant. If erosion issues occur after the SWPPP has been closed out, then the restoration

contractor will be responsible for stabilizing restoration sites. Site stabilization may involve re-contouring, installation of biodegradable fiber rolls and/or blanket materials, and potentially reseeding.

# 5.7 Seeding

Seeding is the primary method for revegetation, where required. Following construction activities for each site where reseeding has been planned, a biologist, experienced in habitat restoration, will recommend seed mix, seeding rate, and application methods as consistent with the HRRP. in consultation with the CPUC, BLM, CDFW, SWRCB/EPA, USACE, as appropriate. Recommendations and seeding specifications (if any) will be based on site-specific conditions, which may include soil structure, potential for water to infiltrate the soil, soil texture, fertility, organic matter, lack of topsoil, large percentage of rocks, low percentage of preconstruction vegetation cover, and susceptibility to weed invasions.

Seeding mixes and rates will be developed based on actual disturbance and, therefore, will be site-specific. To calculate the number of pounds of seed needed for reseeding projects, it is necessary to calculate the number of pure live seeds (PLS) per pound. This will vary depending on which species, and even within each batch of seed.

PLS calculations take into account the purity (amount of actual seed of the species) and the germination rate of that batch of seed. So, for any given batch of seed, the PLS equals:

% purity x % germination/100 = pure live seed (PLS)

The amount of PLS is then used to calculate the actual seeding rate needed. To do this, divide the PLS figure into the recommended seeding rate to get the actual seeding rate:

recommended seeding rate/% PLS = actual seeding rate needed

## 5.7.1 Native Plant Palettes

Plant palettes (predominantly seed mixes) may be created for specific revegetation sites from seed or other propagules (i.e., vegetative cuttings) collected near the project area or purchased seeds collected from nearby areas (preference will be given to seed sourced from western Riverside and San Bernardino counties, if available. If seed is not available in the immediate counties, seed may be acquired from other Southern California counties or commercially bulked as available and deemed appropriate). If live cuttings are used, cuttings will only be obtained from the immediate area. After seed acquisition, a biologist experienced in habitat restoration will formulate appropriate plant palettes based on availability of seeds or other propagules and the site-specific approach to restoration for each disturbance area. Species appropriate for container plant production if necessary have been included in the plant palettes listed in Tables 5-1 through 5-4.

Seed mix composition will account for pre-disturbance community composition and will follow guidelines published in *Rehabilitation of Disturbed Lands in California: A Manual for Decision Making* (Newton and Claassen, 2003). Seed mixes will include dominant species for each vegetation community, “naturally invasive” species (i.e., native species that are successful at colonizing disturbed sites), species known to be prolific seed producers, species known to be successful during seeding, uncommon species (for example, characteristic species within special status vegetation communities), or species known to provide habitat for target wildlife species. Additionally, species

in the plant palettes should have a mix of species with differing rooting strategies (Newton and Claassen, 2003). Seeding rates will be specified as pounds per acre of pure live seed. Tables 5-1 through 5-4 provide sample native species plant palettes specific for Project revegetation areas. The palettes have been designed to include priority species that should be included in the seed mixes when available and secondary species that can be included to increase diversity, or to provide substitutions for priority species that may be unavailable at the time of seeding. Total seed application rates should include a minimum of 25 to 30 pounds pure live seed (PLS) per acre, but specific rates will be determined at the time of seeding. To promote diversity and site stabilization, mixes should have no fewer than 5 to 10 species.

Seeding will be completed in fall as practical to take advantage of the full seasonal rainfall year (October to March). Ideally, sites should not be seeded in midwinter or later, due to risk of germination and subsequent desiccation and die-off. Pre-treatment of seeds by the seed vendor, as necessary, prior to seed application to break dormancy will be completed prior to application.

**Table 5-1. Alluvial Scrub Seed Palette[1]**

| Scientific Name | Common Name | Proposed Seeding Rate (PLS lbs/acre) | Suitability as Container Plants |
|---|---|---|---|
| ***Primary species*** | | | |
| *Ambrosia salsola* | cheesebush | 6 | yes |
| *Baccharis salicifolia* | mulefat | 0.5 | yes |
| *Bebbia juncea* | sweetbush | 0.5 | yes |
| *Encelia farinosa* | brittlebush | 2 | yes |
| *Ericameria paniculata* | black-stem rabbitbrush | 4 | yes |
| *Larrea tridentata* | creosote bush | 6 | yes |
| *Lepidospartum squamatum* | scalebroom | 4 | difficult (fresh seed required) |
| *Peritoma arborea* | bladderpod | 4 | yes |
| ***Secondary Species*** | | | |
| *Ambrosia dumosa* | white bursage | 4 | yes |
| *Amsinckia tessellata** | bristly fiddleneck | 3 | no |
| *Atriplex polycarpa* | allscale | 3 | yes |
| *Bahiopsis parishii* | Parish viguiera | 0.5 | yes |
| *Chaenactis spp.* | pincushion | 0.5 | no |
| *Condea emoryi* | desert lavender | 1 | yes |
| *Croton setigerus* | turkey-mullein | 4 | no |
| *Cryptantha spp.* | popcorn flower | 0.5 | no |
| *Ephedra californica* | California jointfir | 1 | yes |
| *Eriogonum fasciculatum* | California buckwheat | 1 | yes |
| *Helianthus annuus* | common sunflower | 3 | no |

**Table 5-1. Alluvial Scrub Seed Palette[1]**

| Scientific Name | Common Name | Proposed Seeding Rate (PLS lbs/acre) | Suitability as Container Plants |
|---|---|---|---|
| *Hilaria rigida* | big galleta | 5 | no |
| *Loeflingia squarrosa* | spreading pygmyleaf | 0.1 | no |
| *Olneya tesota* | desert ironwood | 2; seed requires pretreatment | yes |
| *Parkinsonia florida* | blue paloverde | 5 | yes |
| *Petalonyx thurberi* | sandpaper plant | 1 | yes |
| *Plantago ovata* | desert plantain | 3 | no |
| *Psorothamnus spinosus* | smoke tree | 1 | no |
| *Senecio flaccidus* | shrubby butterweed | 0.1 | yes |
| *Senegalia greggii* | catclaw acacia | 2 | yes |
| *Stephanomeria exigua* | small wirelettuce | 0.5 | no |
| *Yucca schidigera* | Mojave yucca | 3 | yes |

[*] *Amsinckia* species can be toxic to cattle, pigs, and horses and should not be included in seed mixes for any sites accessible to livestock.
[1] Palette suitable for habitat(s) identified in the 1600 permit: scalebroom scrub, cheesebush scrub.

**Table 5-2. Arid Riparian Woodland Seed Palette**

| Scientific Name | Common Name | Proposed Seeding Rate (PLS lbs/acre) | Suitability as Container Plants |
|---|---|---|---|
| ***Primary Species*** | | | |
| *Ambrosia salsola* | cheesebush | 6 | yes |
| *Atriplex polycarpa* | allscale | 3 | yes |
| *Bahiopsis parishii* | Parish viguiera | 0.5 | yes |
| *Bebbia juncea* | sweetbush | 1 | yes |
| *Chilopsis linearis* | desert willow | 6 | yes |
| *Encelia farinosa* | brittlebush | 2 | yes |
| *Eriogonum fasciculatum* | California buckwheat | 1 | yes |
| *Hilaria rigida* | big galleta | 5 | no |
| *Larrea tridentata* | creosote bush | 6 | yes |
| ***Secondary Species*** | | | |
| *Ambrosia dumosa* | white bursage | 4 | yes |
| *Amsinckia tessellata** | bristly fiddleneck | 3 | no |
| *Chaenactis spp.* | pincushion | 0.5 | no |
| *Condea emoryi* | desert lavender | 1 | yes |

**Table 5-2. Arid Riparian Woodland Seed Palette**

| Scientific Name | Common Name | Proposed Seeding Rate (PLS lbs/acre) | Suitability as Container Plants |
|---|---|---|---|
| *Croton setigerus* | turkey-mullein | 4 | no |
| *Cryptantha spp.* | popcorn flower | 0.5 | no |
| *Ephedra californica* | California jointfir | 1 | yes |
| *Ericameria paniculata* | black-stem rabbitbrush | 4 | yes |
| *Helianthus annuus* | common sunflower | 3 | no |
| *Lepidospartum squamatum* | scalebroom | 4 | difficult |
| *Olneya tesota* | desert ironwood | 2; seed requires pretreatment | yes |
| *Peritoma arborea* | bladderpod | 1 | yes |
| *Petalonyx thurberi* | sandpaper plant | 1 | yes |
| *Plantago ovata* | desert plantain | 3 | no |
| *Psorothamnus spinosus* | smoke tree | 1 | no |
| *Stephanomeria exigua* | small wirelettuce | 0.5 | no |
| *Yucca schidigera* | Mojave yucca | 3 | yes |

**Amsinckia* species can be toxic to cattle, pigs, and horses and should not be included in seed mixes for any sites accessible to livestock.

**Table 5-3. Mesic Riparian Woodland Seed Palette[1]**

| Scientific Name | Common Name | Proposed Seeding Rate (PLS lbs/acre) | Suitability as Container Plants |
|---|---|---|---|
| ***Primary Species*** | | | |
| *Agrostis exarata* | spike bentgrass | 5 | yes |
| *Ambrosia pilostachya* | western ragweed | 1.5 | yes |
| *Artemisia douglasiana* | California mugwort | 0.5 | yes |
| *Baccharis salicifolia* | mulefat | 0.1 | yes |
| *Carex praegracilis* | field sedge | 2 | yes |
| *Elymus triticoides* | beardless wildrye | 6 | yes |
| *Euthamia occidentalis* | western goldenrod | 0.25 | yes |
| *Hordeum brachyantherum* | meadow barley | 10 | yes |
| *Juncus mexicanus* | Mexican rush | 1 | yes |
| *Platanus racemosa* | western sycamore | NA | yes |
| *Pluchea sericea* | arrow weed | 0.5 | yes |
| *Populus fremontii* | Fremont cottonwood | NA | cuttings |
| *Salix laevigata* | red willow | NA | cuttings |

**Table 5-3. Mesic Riparian Woodland Seed Palette[1]**

| Scientific Name | Common Name | Proposed Seeding Rate (PLS lbs/acre) | Suitability as Container Plants |
|---|---|---|---|
| *Salix lasiolepis* | arroyo willow | NA | cuttings |
| *Sambucus nigra ssp. caerulea* | blue elderberry | 2 | yes |
| *Scrophularia californica* | California bee plant | 1 | yes |
| *Senecio flaccidus* | shrubby butterweed | .01 | yes |
| ***Secondary Species*** | | | |
| *Ambrosia acanthocarpa* | annual bursage | 1 | no |
| *Baccharis salicina* | willow baccharis | 0.1 | yes |
| *Croton setigerus* | turkey-mullein | 4 | no |
| *Epilobium brachycarpum* | annual fireweed | 0.5 | no |
| *Fraxinus velutina* | Arizona ash | 1; seed requires pretreatment | yes |
| *Helianthus annuus* | common sunflower | 3 | no |
| *Helianthus californicus* | California sunflower | 3 | no |
| *Isocoma menziesii* | Menzies' goldenbush | 1 | yes |
| *Juncus xiphioides* | iris leaved rush | 1 | yes |
| *Lythrum californicum* | California loosestrife | 0.5 | no |
| *Mimulus cardinalis* | scarlet monkeyflower | 0.1 | yes |
| *Rosa californica* | California rose | seed requires pretreatment | yes |
| *Solanum douglasii* | Douglas' nightshade | 1 | yes |
| *Stephanomeria virgata* | rod wirelettuce | 0.5 | no |
| *Trichostema lanceolatum* | vinegarweed | 2 | no |
| *Urtica dioica ssp. holosericea* | stinging nettle | 0.5 | no |
| *Vitis girdiana* | desert wild grape | NA | yes |

[1] Palette suitable for habitat(s) identified in the 1600 permit: arroyo willow riparian forest, arroyo willow scrub, cottonwood-sycamore riparian forest, cottonwood-willow riparian forest, Fremont cottonwood forest, Central and Valley freshwater marsh, mulefat scrub, red willow thickets, southern willow scrub, tamarisk stands.

**Table 5-4. Coastal Sage Scrub Seed Palette**

| Scientific Name | Common Name | Proposed Seeding Rate (PLS lbs/acre)a | Suitability as Container Plants |
|---|---|---|---|
| ***Primary Species*** | | | |
| *Acmispon glaber* | deerweed | 6 (hot water treatment) | yes |
| *Artemisia californica* | California sagebrush | 1 | yes |
| *Chaenactis glabriuscula* | yellow pincushion | 0.5 | no |

**Table 5-4. Coastal Sage Scrub Seed Palette**

| Scientific Name | Common Name | Proposed Seeding Rate (PLS lbs/acre)a | Suitability as Container Plants |
|---|---|---|---|
| *Croton californicus* | California croton | 3 | yes |
| *Elymus condensatus* | giant wild rye | 10 | yes |
| *Encelia farinosa* | brittlebush | 1 | yes |
| *Ericameria palmeri* | Palmer's goldenbush | 4 | yes |
| *Eriogonum elongatum* | long stemmed buckwheat | 1 | yes |
| *Eriogonum fasciculatum* | California buckwheat | 1 | yes |
| *Keckiella antirrhinoides* | chaparral beard tongue | 1 | yes |
| *Lasthenia californica* | California goldfields | 1 | no |
| *Melica imperfecta* | California melic | 5 | yes |
| *Penstemon spectabilis* | showy penstemon | 3 | yes |
| *Rhamnus crocea* | redberry | NA | yes |
| *Rhus trilobata* | skunk bush | NA | yes |
| *Salvia apiana* | white sage | 2 | yes |
| *Salvia mellifera* | black sage | 3 (stratify for 3 months or soak in 400 parts per million gibberellic acid 1 hour) | yes |
| Stipa cernua | nodding needlegrass | 8 | yes |
| ***Secondary Species*** | | | |
| *Ambrosia acanthicarpa* | annual bursage | 1.5 | no |
| *Artemisia dracunculus* | pinon wormwood | 1 | yes |
| *Astragalus pomonensis* | Pomona locoweed | 2 | yes |
| *Atriplex canescens* | fourwing saltbush | 3 (fresh seeds need dry storage for about 10 months; stored seeds no treatment or 2.5 months stratification) | yes |
| *Baccharis pilularis* | coyote bush | 0.1 | yes |
| *Brickellia desertorum* | desert brickellbush | 0.25 | yes |
| *Camissoniopsis bistorta* | California suncup | 0.5 | no |
| *Corethrogyne filaginifolia* | common sandaster | 0.1 | yes |
| *Cryptantha intermedia* | common cryptantha | 2 | no |
| *Cucurbita foetidissima* | calabazilla | 3 | unknown |
| *Emmenanthe penduliflora* | whispering bells | 0.5 (oven heat of 500 degrees F for 10 minutes) | no |
| *Encelia californica* | California brittlebush | 0.1 | yes |

**Table 5-4. Coastal Sage Scrub Seed Palette**

| Scientific Name | Common Name | Proposed Seeding Rate (PLS lbs/acre)a | Suitability as Container Plants |
|---|---|---|---|
| *Epilobium canum* | California fuchsia | 0.5 | yes |
| *Eriastrum densifolium* | giant woollystar | 4 | no |
| *Erigeron foliosus* | leafy daisy | 1 | yes |
| *Eulobus californicus* | California primrose | 1 | no |
| *Hazardia squarrosa* | saw toothed goldenbush | 2 | yes |
| *Hesperoyucca whipplei* | chaparral yucca | 2 | yes |
| *Lupinus albifrons* | silver bush lupine | 3 (fresh seeds no treatment; stored seeds scarification or hot water) | yes |
| *Lupinus hirsutissimus* | nettle lupine | 2 (fresh seeds no treatment; stored seeds scarification or hot water) | no |
| *Lupinus microcarpus* | chick lupine | 4 (fresh seeds no treatment; stored seeds scarification or hot water) | no |
| *Lupinus sparsiflorus* | Mohave lupine | 2 (fresh seeds no treatment; stored seeds scarification or hot water) | no |
| *Malacothamnus fremontii* | Fremont's bush mallow | 3; seed requires treatment | yes |
| *Malacothrix saxatilis* | cliff aster | 0.5 | yes |
| *Malosma laurina* | laurel sumac | 3 (hot water or oven heat of 200 to 240 degrees F for 5 minutes) | yes |
| *Mirabilis laevis* | desert wishbone bush | 0.5 | yes |
| *Plantago erecta* | California plantain | 2 | no |
| *Rhus ovata* | sugar bush | seed requires treatment | yes |
| *Salvia columbariae* | chia | 1 | no |
| *Sphaeralcea angustifolia* | copper globemallow | 1 | yes |
| *Stipa coronata* | crested needlegrass | 8 | yes |
| *Stipa lepida* | foothill needlegrass | 8 | yes |
| *Stipa pulchra* | purple needlegrass | 10 | yes |
| *Trichostema lanceolatum* | vinegarweed | 1 (2 months stratification) | no |

[a] Germination pre-treatment recommendations from Emery 1988.

## 5.7.2 Seeding Methods

One or a combination of four available methods of seed application may be used depending on the specific restoration area conditions. The methods include drill seeding, imprint seeding, broadcast (or hand-broadcast) seeding, and hydroseeding. Restoration seeding will be completed in fall as practical to take advantage of the full seasonal rainfall year (October to March). If seeding must be delayed due to construction schedule impacts, sites will be stabilized as per methods in the Project SWPPP until seeding can occur.

### 5.7.2.1 Drill Seeding

Drill seeding places seeds at a depth specified by a machine, which may be a mechanized drill or hand-operated drill. Drill seeding provides greater opportunity for seeds to be in contact with soil moisture, protects seeds from predation by birds or insects, and prevents small seeds from being carried away by wind or precipitation. This method of seeding is optimal for large seeds, but can be used for seeds of all sizes. Because different sized seeds germinate at variable optimal depths, only seeds of similar size should be used in the drill simultaneously. Drill seeding often leaves an "unnatural" visual impact because the seeds are implanted in rows.

If implemented on the Project, generally drill seeding will be used on sites with shallow slopes (less than 3:1) and those that are greater than 1 acre in size with few impediments to maneuvering (Newton and Claassen, 2003). Any corners or narrow areas that cannot be reached with the drill would be hand seeded. Hand seeding may be used to supplement a more natural regrowth pattern by scattering seeds in between rows of the drill seeder. Drill seeding will correspond with seasonal rainfall and will not be used with supplemental irrigation. Drill seeding may be used on compacted or sandy soils because the drill acts to break the soil surface and implant the seeds beneath it.

### 5.7.2.2 Imprint Seeding

Imprinting may be used on areas larger than 0.5 acre where soils are neither too loose nor heavily compacted. In appropriate soils, imprinting facilitates successful establishment of seed into the soil and eliminates the need for mulch, soil irrigation, and soil binding. Imprinting also increases rainwater infiltration, improves gas exchange between the soil and atmosphere, reduces erosion, and improves contact between seeds and soil water (Barnes, 1950; Gintzburger, 1987; Oliveira et al., 1987; Slayback and Cable, 1970). In addition, imprinting may create microsites that catch and hold wind-dispersed seed, encouraging germination and plant establishment.

Imprinting is accomplished via a mechanical imprinter that is pulled behind a tractor and simultaneously spreads and buries pre-developed seed mixes in V-shaped depressions approximately 3 to 5 inches deep. Imprinting under most conditions results in shrub establishment within 1 to 3 years. However, imprinting achieves the best results when accomplished during or immediately following the rainy season.

For this Project, imprinting is recommended for friable soils that are likely to maintain their shape once treated.

### 5.7.2.3 Hand Seeding

Hand seeding will generally be used where mechanical seeding is deemed infeasible because of substrate, location, or disturbance area size. In general, application of hand-broadcasted seed will be

reserved for areas approximately 0.5 acre or less or where small amounts of seed are needed. Hand-seeded sites will be raked or harrowed before seeding to break up the surface and after to allow seeds to fall into crevices. Raking or other post-seeding treatment to lightly cover seed will also be completed to enhance germination likelihood, provide even distribution of seed, and reduce losses to granivores. This will also help retain moisture for germination. The seed material may be broadcast by hand or using a seed spreader. Hand seeding will be timed to occur in the late fall prior to rains.

#### 5.7.2.4 Hydroseeding

Hydroseeding is an effective method of reseeding that can be used in a variety of settings and with diverse seed mixes. It is ideal for steeply sloped or erosive areas, rocky substrates, or large, flat features that require large amounts of material cover. Because hydroseeding requires trucks or trailers to haul, mix, and apply the hydroseed, some accessibility is required near a site; however, hoses may be used to broadcast seed. Hydroseeding does not break apart the soil surface; therefore, a site should be prepared by decompaction, scraping, or raking prior to application of the hydroseed. Each hydroseed mix contains seeds, fertilizer, and a small amount of mulch. Additional hydromulch may be added to the hydroseed mixture or implemented as a separate step. Hydromulch is an additional slurry of organic fibrous material, tackifier, and soil amendments that helps bind the mixture to the soil and retain moisture for germination (Baxter, 2007). One advantage of using hydroseed over other revegetation methods is that when applied at the proper time and during normal precipitation years, no supplemental irrigation is needed.

When hydroseeding is used on the Project, a four-step process will be implemented. First, the soil will be prepared. If it is determined by a biologist experienced in habitat restoration that the soil is too compacted, then a site will be decompacted, scraped, or raked prior to application of the hydroseed. Just before the hydroseed is applied, the soil will be moistened to allow the seed to stick to the soil surface (Newton and Claassen, 2003). However, if significant rainfall has occurred within 24 hours, pre-wetting may not be necessary and may be determined by the biologist onsite. The hydroseed mixture (seed, water, fertilizer, and small amount of mulch) will then be applied across the site. Lastly, the hydromulch (organic fiber, soil amendments, and tackifier) will be applied. Separating the hydroseed and hydromulch into separate layers helps ensure that the seed comes in contact with the soil rather than being bound up in the mulch or exposed to air where it can dry up without germinating (Newton and Claassen, 2003). A typical rate of application in arid California is 500 pounds per acre of wood fiber mulch for hydroseed-only sites and 1,500 to 2,000 pounds per acre of wood fiber mulch and a tackifier for the hydromulch method (Newton and Claassen, 2003); however, the restoration contractor will determine the specific rate of application on a site-by-site basis in consultation with the SWPPP consultant. If deemed necessary by a biologist, supplemental irrigation may be applied to a site after the hydroseed has been applied until germination.

### 5.7.3 Nursery Stock Planting

Seeding is the primary method for revegetation, where required. However, nursery-produced container plants *may* be used on some sites or for certain species. The size and shape of the containers should match the plant's rooting strategy (i.e., deep-rooted plants should be grown in tall pots to encourage more root development, while fibrous-rooted plants can be grown in shorter pots or as plugs). The numbers, species, sizes, and spacing of container plants, if used, will be determined in conjunction with the development of site-specific seed mixes and seeding approach. Container plants would be installed between October and March.

Container stock installation requires an associated irrigation method to supply irrigation through the first year at a minimum. Irrigation will be installed and tested prior to container plant installation and may include use of flood bubblers or drip emitters. In cases of very small or remote planting sites, DRiWATER or equivalent gel water product or hand watering using buckets may be used to irrigate container plants.

Planting holes will be excavated to diameters approximately twice that of the root ball (but not deeper than the root ball, to avoid settling). Planting holes will be thoroughly moistened by irrigation prior to placement of container plants. During installation of container stock, care will be taken to minimize disturbance of the root system while extracting the plants from their containers. The plants will be placed in the holes and loose native soil will be backfilled into the hole around the plant and firmly hand-packed around the root ball to eliminate any air pockets. For deep pots, soil will be backfilled and packed in lifts of a few inches at a time to discourage settling of plants. Berms or basins may be constructed to aid in irrigation, but special care will be taken to avoid pooling of water around plant stems or settling of the stem/root union below grade. Plants will be watered immediately after installation.

**Table 5-4. Restoration and Revegetation Schedule**

| Restoration/Revegetation Treatments | Timing |
|---|---|
| ***Preconstruction Activities*** | |
| Site Characterization | Prior to contractor mobilization |
| Preconstruction Weed Treatment[1] | Spring/Summer (or as appropriate for target species) |
| Seed Collection and/or Procurement | All year |
| ***Construction Period Activities*** | |
| Vegetation Impact Avoidance and Minimization | Prior to contractor mobilization and throughout construction phase |
| Soil and Plant Salvage and Storage | Plants: Spring or Fall (or as appropriate for target species). Soil: At site grading initiation |
| ***Post-construction Activities*** | |
| Trash and Debris Removal | Prior to soil work or planting activities |
| Weed Removal | Spring/Summer (or as appropriate for target species) |
| Soil Decompaction | Prior to planting or seeding |
| Stream Channel Recontouring | Prior to planting or seeding |
| Spread of Salvaged Topsoil | Prior to planting or seeding |
| Seeding | Fall/Winter |
| Nursery Stock of Cutting Planting | Fall/Winter |
| Watering | In conjunction with planting, and as needed throughout establishment and maintenance period |
| Weed Removal | Spring/Summer (or as appropriate for target species) as needed |
| Erosion Control | Fall/Winter/Spring as needed |

[1] The construction activities will be conducted in phases; therefore, "pre-construction" weed treatment would be conducted, as needed, prior to disturbance at any given site that requires treatment. This activity will likely be completed for most sites prior to the initial start of construction. However, in practice, this activity may be conduct for some sites each year during the construction phase of the project.

### 5.7.3.1 Cuttings

Installing cuttings of woody species that reproduce vegetatively (e.g., willow and cottonwood species on the Project) can be a successful revegetation method along riparian edges. As the cuttings proliferate, they offer erosion control along banks, fast-growing native vegetation, and, when mature, create a source for future vegetative diversity. If used on the Project, unrooted cuttings will be (1) collected and planted during the dormant season, (2) oriented in the planting area as from the collection site (bottom versus top), (3) trimmed to one primary piece/stem, (4) kept moist and stored for no longer than 2 weeks from cutting to planting, and (5) watered when planted and planted deeply enough to contact adequate soil moisture for rooting (Newton and Claassen, 2003). To prevent predation, cuttings will be surrounded with protective fencing until established. A biologist, experienced in habitat restoration, will evaluate the potential of this method on a site-by-site basis by evaluating upstream and downstream conditions of these riparian species and bank conditions on a site. Sites that occur at sharp curves, steep banks, or are within large alluvial washes should be avoided for this method (Briggs, 1995).

# Chapter 6
# Maintenance, Monitoring, Performance Criteria, and Reporting Requirements

Maintenance, monitoring, and reporting of the revegetation or restoration sites will begin with implementation of the restoration and revegetation work at each of the Project's temporarily impacted waters of the U.S. and State, and will continue for at least 5 years, or until the defined performance criteria are met.

## 6.1 Maintenance Activities and Schedule

Restored sites will be maintained per the schedule presented in Table 6-1 and the methods outlined in the following subsections.

**Table 6-1. Maintenance Schedule**

| Maintenance Activity | Frequency |
|---|---|
| Watering (container plants or cuttings only) | Once or twice weekly during the establishment period (approximately the first 3 months after planting).<br>Once or twice monthly for the first year.<br>As deemed necessary by a qualified biologist for the second year or as a remedial action for under-performing sites.<br>(Irrigation frequencies will ultimately be determined by precipitation patterns and site conditions). |
| Weed Control | As described in the IWMP. Generally, once per year in spring (February to April). A visit in fall may also be warranted for species germinating later in the season. Frequency may be adjusted as needed on a site-by-site basis. |
| Erosion Control | Once per year in spring (February to April). Additional visits conducted as conditions (flood, fire, etc.) require. |

### 6.1.1 Watering

Irrigation may be used on sites where container plants or cuttings are installed (if container planting occurs). Irrigation and supplemental watering will be considered in conjunction with other restoration treatments on a site by site basis. Germination at seeded areas will rely on natural precipitation. Where irrigation is required, accessible sites will have either drip- or bubbler-type irrigation systems installed that will be fed by either onsite tanks or a water truck connection. Hand watering or installation of gel-type irrigation products (i.e., DRIwater) may occur on inaccessible or small sites. Specific schedules and quantities of irrigation will depend on weather patterns and site conditions.

### 6.1.2 Weed Control

The strategy for and principal methods of weed control are discussed in the Project's IWMP (CH2M, 2016b). Principal methods used for this Project include prevention, physical weed removal, and herbicide application. For the purpose of habitat restoration and maintenance, weed prevalence

will be evaluated annually, and the need for either physical or herbicidal control methods will be decided based on methods that best suit the desired outcome.

Physical weed removal will be the preferred means of maintaining restoration and revegetation sites and will be employed according to guidelines in the IWMP. Herbicide application will be reserved for the more difficult and aggressive invasive species not readily removed by physical methods, or for areas where repeated mechanical treatment fails to produce the desired reduction of invasive species.

### 6.1.3 Erosion Control

Temporary disturbance areas will be monitored for erosion by the Project SWPPP consultant. Any erosion issues observed by the restoration contractor shall be immediately reported to the SWPPP consultant. If erosion issues occur after the SWPPP has been closed out, then the restoration contractor will be responsible for stabilizing restoration sites. Site stabilization may involve recontouring, installation of biodegradable fiber rolls and/or blanket materials, and potentially reseeding.

### 6.1.4 Trash/Debris Removal

Trash will be removed from the restoration areas by hand during the annual maintenance visits. Trash consists of all human-made materials, equipment, or debris dumped, thrown, washed, blown, and left within the restoration areas. Deadwood and leaf litter of native trees and shrubs will not be removed. Following each site inspection, staff will communicate any additional trash and debris removal requirements to the biologist, experienced in habitat restoration.

## 6.2 Monitoring and Reporting Activities and Schedule

Monitoring will begin the first spring after restoration and continue annually to assess whether the performance criteria have been achieved and whether corrective measures need to be employed. To ensure successful establishment of the sites, SCE may conduct monitoring more frequently as deemed appropriate for site-specific situations and during the initial establishment period. Restoration and revegetation sites will be monitored for no fewer than 5 years, or until established performance criteria are met (whichever is greater). Monitoring will include an assessment of the progress and identification of potential problems with the revegetated site. If necessary, remedial action, such as additional planting, weeding, supplemental watering, or erosion control, will be taken. If the restored habitat mitigation does not meet the established performance criteria after the 5-year maintenance and monitoring period, then monitoring may extend beyond the 5-year period until the criteria are met or unless otherwise directed by the CPUC, BLM, CDFW, SWRCB/EPA, and USACE (as appropriate).

**Table 6-2. Monitoring Schedule**
*WOD Habitat Restoration and Revegetation Plan*

| Monitoring Frequency | Submittals |
|---|---|
| Biannual qualitative assessments throughout the monitoring period (more frequent visits may occur as needed depending on restoration activity, e.g., container plant installation).<br>Quantitative monitoring will be conducted in spring as the restoration sites begin approaching final conditions. | Brief memorandum summarizing results of the visits. |

## 6.2.1 Monitoring Methods

Baseline values from which cover and species richness percentages are to be calculated to determine the performance criteria will be established prior to ground-disturbing activities. The presence of annual plants at the site will be recorded, but due to their great inter-annual variability, they will not be used in quantitative performance criteria.

Quantitative sampling of vegetation cover will be used to determine cover and the percent contribution of species to plant community composition. Prior to site disturbance, absolute cover of native perennial species will be measured for each habitat type potentially requiring restoration (as determined by previously determined vegetation mapping and habitat classification). Sampling will occur by either quadrat or line transects depending on vegetation. Herbaceous sites will likely be sampled using quadrats, while shrub communities will be sampled with transects. Locations and numbers of quadrats and transects will be pre-determined using stratified random selection with geographic information systems. If the number and/or location of sampling quadrats or transects does not provide an accurate representation of the vegetation onsite as determined by the ecologists conducting the sampling (i.e., the site contains some native perennial grasses but none of the stratified randomly located quadrats contain native perennial grasses), then the method will be adjusted using professional judgement in an attempt to sample locations that accurately represent the site conditions. The sampling ecologists will use the data gathered in transect and quadrat sampling to estimate percent cover of native and non-native vegetation for each subsequent site. In addition to the quantitative sampling, qualitative notes will be taken as necessary, such as preponderance of native annual species or weed species. Representative photographs will be taken at each site.

## 6.2.2 Performance Criteria and Adaptive Management

Monitoring and adaptive management of revegetation sites is necessary to ensure long-term native plant community establishment. Data collected prior to site development will support long-term evaluation of revegetation targets and results. Due to the extended duration of passive revegetation in arid environments, revegetation of Project disturbance areas will be accelerated by seeding with primarily early- to mid-successional species. Seedling establishment resulting from dispersal of the native seedbank may also occur.

Plant communities cannot be immediately returned to pre-disturbance composition; therefore, the criteria for revegetation success needs to be established on the basis of *successional* plant associations rather than mature climax vegetation (CH2M, 2008). Successional stages can be

identified to the extent that the initial stage of colonization, intermediate successional stage(s), and final stage or climax vegetation are generally predictable.

This means that instead of planning for climax vegetation that physically cannot become established for decades, successional plant communities composed of species native to the area could readily occupy previously disturbed areas. Accelerating their initial establishment and growth in terms of diversity, density, and stature can be achieved through an ecologically realistic revegetation program. Even when revegetation is successful, plant communities established are typically composed of pioneer and successional species adapted to disturbed substrate.

The initial species richness (often called "diversity") of the revegetated sites will not be as great as any reference site. Success will be realistically linked to seedling establishment and survival, increase in the cover and species richness of perennial shrubs, and evolution of the site toward a "mature" community dominated by late-successional plant species.

Table 6-3 presents the performance criteria for restoration/revegetation of temporary disturbance areas within the 5-year monitoring period. An explanation of the performance criteria follows Table 6-3.

The intent of the performance criteria is to (1) prevent the sites from becoming overrun by invasive non-natives, and (2) set meaningful and feasible criteria for replacement of native plant species (and the associated habitat values). Both criteria are based on aerial cover estimates where the sum of native plant cover, non-native plant cover, and bare ground is 100 percent (However, it should be noted that some vegetation sampling methods can produce total cover values greater than 100 percent).

The first criterion refers to relative amounts of native and non-native cover within a given revegetation area. The criterion requires that native species make up the majority (80 percent) of vegetation cover, while recognizing the fact that non-native species will invade the site and will realistically comprise a portion (limited to 20 percent or less) of the total cover. This criterion compares native and non-native cover within a site but it does not compare a revegetation site to reference sites or pre-disturbance condition. However, it allows for adjustment in grassland/forbland, where the pre-disturbance condition is dominated by non-native species.

For example, if a 10,000-square-foot revegetation site has total (i.e., absolute) vegetation cover of 60 percent (i.e., 6,000 square feet of the site covered by plants), comprising 4,800 square feet of native plants and 1,200 square feet of non-native plants, this criterion would be met.

The second criterion refers to absolute native plant cover and density within the site as compared to reference sites or pre-disturbance conditions. It requires that native plant cover in revegetation sites reach 60 percent of the pre-disturbance or reference native plant cover, and that the density (i.e., number per acre) of native shrubs and trees reach 60 percent. This criterion requires that revegetated sites provide meaningful native habitat values and native species cover (compared to the reference or pre-disturbance condition), while recognizing that more stringent requirements (e.g., 80 percent or higher) may not be feasible.

**Table 6-3. Performance Criteria for Restored/Revegetated Project Temporary Impacted Waters of the U.S. and State**

| | Success Performance[a] | | | |
|---|---|---|---|---|
| **Vegetation Type** | **Native Vegetation** | **Absolute Native Plant Cover** | **Native Shrub/ Tree Density** | **Maintenance** |
| Agriculture | Minimize weed invasion through implementation of the methods and performance criteria in the IWMP, and control dust generation and soil erosion according to the standards in the project SWPPP. | | | |
| Developed/Disturbed | | | | |
| Grassland/Forbland (not suitable SKR habitat and less than 10 percent of relative cover of native perennial grass species) | | | | |
| Temporary disturbance areas that cannot be effectively revegetated | | | | |
| Grassland/Forbland (suitable SKR habitat or 10 percent or greater relative cover of native perennial grass species) | 80 percent of vegetation cover shall be native species that occur naturally in local native habitats. Criteria will be adjusted to account for pre-disturbance non-native grass cover. | 60 percent of pre-disturbance or reference vegetation. | 60 percent of pre-disturbance or reference vegetation. | The site shall have persisted successfully without irrigation or remedial planting for a minimum of 2 years prior to completion of monitoring. |
| Alluvial Scrub | 80 percent of vegetation cover or equivalent to pre-disturbance or reference cover, whichever is greater, shall be native species that occur naturally in local native habitats. | | | |
| Arid Riparian Woodland | | | | |
| Mesic Riparian Woodland[b] | | | | |
| Coastal Sage Scrub | | | | |

[a] MM VEG-1d, Part B

[b] Palette suitable for habitat(s) identified in the 1600 permit: arroyo willow riparian forest, arroyo willow scrub, cottonwood-sycamore riparian forest, cottonwood-willow riparian forest, Fremont cottonwood forest, Central and Valley freshwater marsh, mulefat scrub, red willow thickets, southern willow scrub, tamarisk stands.

For example, if the pre-disturbance or reference condition is 80 percent native plant cover, with the remaining 20 percent comprised of non-natives or bare ground, the example above would apply. The revegetation site must achieve 60 percent of 80 percent (i.e., 48 percent) cover of native plants. Using the example above, a 10,000-square-foot revegetation site should have 4,800 square feet covered by native plants. Additionally, if the reference site supports 1,000 native shrubs per acre, then the revegetation site must support 60 percent of that density (i.e., 600 native shrubs/acre). The site may also include some cover of non-native plants, per the first criterion, but the non-natives do not count toward the native plant cover and must not exceed 1,200 square feet of the site. Together the two criteria ensure that revegetation is deemed successful when sites have (1) at least 60 percent native species cover and density compared to pre-disturbance or reference vegetation, and (2) no more than 20 percent relative cover of non-native plants within the site.

Table 6-4 includes example scenarios of the performance criteria calculations.

**Table 6-4. Performance Criteria Scenarios**

| | Revegetation site absolute cover | | |
|---|---|---|---|
| **Reference Site Absolute Native Cover** | **Required Minimum Native Cover (60% x Reference Native Cover)** | **Maximum Non-Native Cover[a]** | **Total Absolute Cover[b]** |
| 100% | 60% | 15% | 75% |
| 90% | 54% | 13.5% | 67.5% |
| 80% | 48% | 12% | 60% |
| 70% | 42% | 10.5% | 52.5% |
| 60% | 36% | 9% | 45% |
| 50% | 30% | 7.5% | 37.5% |
| 40% | 24% | 6% | 30% |
| 30% | 18% | 4.5% | 22.5% |
| 20% | 12% | 3% | 15% |
| 10% | 6% | 1.5% | 7.5% |

[a] Assumes minimum required native cover from column 2

[b] Assumes minimum native cover + 20% max non-native relative cover. For all rows, the ratio of native to non-native cover is 80:20

Impacted areas will be inspected for species on the California Invasive Plant Council list of invasive plants. If found, SCE will implement the measures outlined in the Project's IWMP.

If plant survival or vegetation cover is not meeting performance criteria, remedial planting and maintenance measures such as irrigation or weeding will occur.

During the initial establishment period, erosion-control measures may be implemented. The measures are incorporated as part of the overall restoration plan; however, inspections and repairs may be necessary and should be completed as soon as problems occur.

If the restoration efforts fail to meet the performance criteria, contingency measures may be required. Contingency measures may include re-planting/reseeding, drainage repairs, adjustments to irrigation or weeding schedule, or extension of maintenance beyond original schedule to repair or remediate sites not on track to meet, or not meeting performance criteria by the end of the monitoring period. Any sites not meeting performance criteria within 5 years will be evaluated and SCE will discuss options with the CPUC, the BLM, CDFW, SWRCB/EPA, and USACE.

Additional reference data may be collected and analyzed throughout the duration of the monitoring period and the results applied to modify restoration techniques or performance criteria as a component of the adaptive management approach as appropriate.

Though the ultimate long-term goal will be to reestablish native perennial species in scrub or woodland habitats, cover of woody perennial species (especially in arid environments) can be very

slow to increase. As such, if a site is not meeting the quantitative performance standard listed in Table 6-3 at the end of the monitoring period, the site may be evaluated using additional measures to determine if the site has achieved a positive trajectory toward a stable, native community. For example, if shrub cover is low but the density of shrub seedlings indicates species are becoming established, then the site may be considered on a trajectory toward success. Remedial measures may be needed, and the monitoring period will be extended until the site achieves success. In herbaceous vegetation (but not shrubland or woodland vegetation), if native annual species cover is high and stays high for well after the initial seeding, then the site may be considered successful as it has reached an early successional status of native species that are successfully regenerating.

For all revegetation or restoration areas, if a fire, flood, or other disturbance beyond the control of SCE, CPUC, and BLM damages a revegetation area within the monitoring period, then SCE shall be responsible for a one-time replacement. If a second event occurs, then no replanting is required, unless the event is caused by SCE's activity (based upon maintenance of erosion control measures; fencing, gates, or other site control; or investigation by a firefighting agency).

### 6.2.3 Reporting

Annual reports will be prepared and submitted to CPUC, BLM, CDFW, SWRCB/EPA, and USACE (as appropriate) within 90 days after completion of each year of revegetation and restoration work. Each report will include results of quantitative and qualitative monitoring efforts, and address success standards and measures to correct underperformance, as needed.

The annual monitoring reports will be based on field observations and measurements, and will record the condition of the restoration and revegetation areas. The monitoring period will begin after completion of the revegetation effort. The monitoring reports will include, but may not be limited to, the following information:

- Total vegetation acreage subject to temporary and permanent disturbance.
- Identification of which items of the HMMP have been completed, and which items are still outstanding.
- Dates and descriptions of reclamation, revegetation, and monitoring activities conducted during the reporting period, including the timing and frequency of data collection, weed control, and maintenance activities.
- Description of the general health and vigor of the plants.
- Description of any pests or circumstances substantially affecting the plants.
- Description of any changes in the physical environment of the plants since the end of the previous reporting period and since the beginning of the monitoring period.
- Presentation of monitoring data and discussion of whether performance criteria for the year were met.
- If it is determined that the restoration has not been successful, then the suspected causes of failure and identification of any adaptive management measures necessary for the success of the restoration effort will be noted.

### 6.2.4 Notification of Completion and Agency Confirmation

Restoration activities will be considered complete when the final performance criteria are met. SCE shall notify the CPUC, BLM, CDFW, SWRCB/EPA, and USACE (as appropriate) in writing upon attainment of the performance criteria. Following receipt of the notification of completion, CPUC and BLM may arrange a visit to the restoration sites to confirm completion of the mitigation effort.

It is possible that despite SCE's best efforts, performance criteria may not be met on some sites. In such cases, SCE will evaluate those sites using adapted standards to determine if the sites are stable and on a trajectory toward recovery. Criteria to evaluate such sites may include qualitative observations such as whether the soils are stable and weeds are under control, signs of successful natural recruitment such as perennial seedlings that may not provide significant cover but are becoming established and will eventually provide higher cover, successful establishment of a native annual populations that appear self-sustaining, or other potential measures. For these sites, remedial measures will be taken as needed using adaptive-management strategies. The monitoring periods will be extended as needed to document achievement of the established performance criteria.

In even fewer cases, it may not be possible to reestablish native vegetation with any reasonable level of effort due to site disturbance outside SCE's control (e.g., vehicle use, livestock grazing, or land use conversion for non-Project purposes). If sites where revegetation has been attempted but failed, and the CPUC, BLM, CDFW, SWRCB/EPA, and USACE (as appropriate) concur that a site is not reasonably restorable for reasons outside SCE's control, they will have the option to sign off on the sites and determine that the mitigation effort is complete.

# Chapter 7
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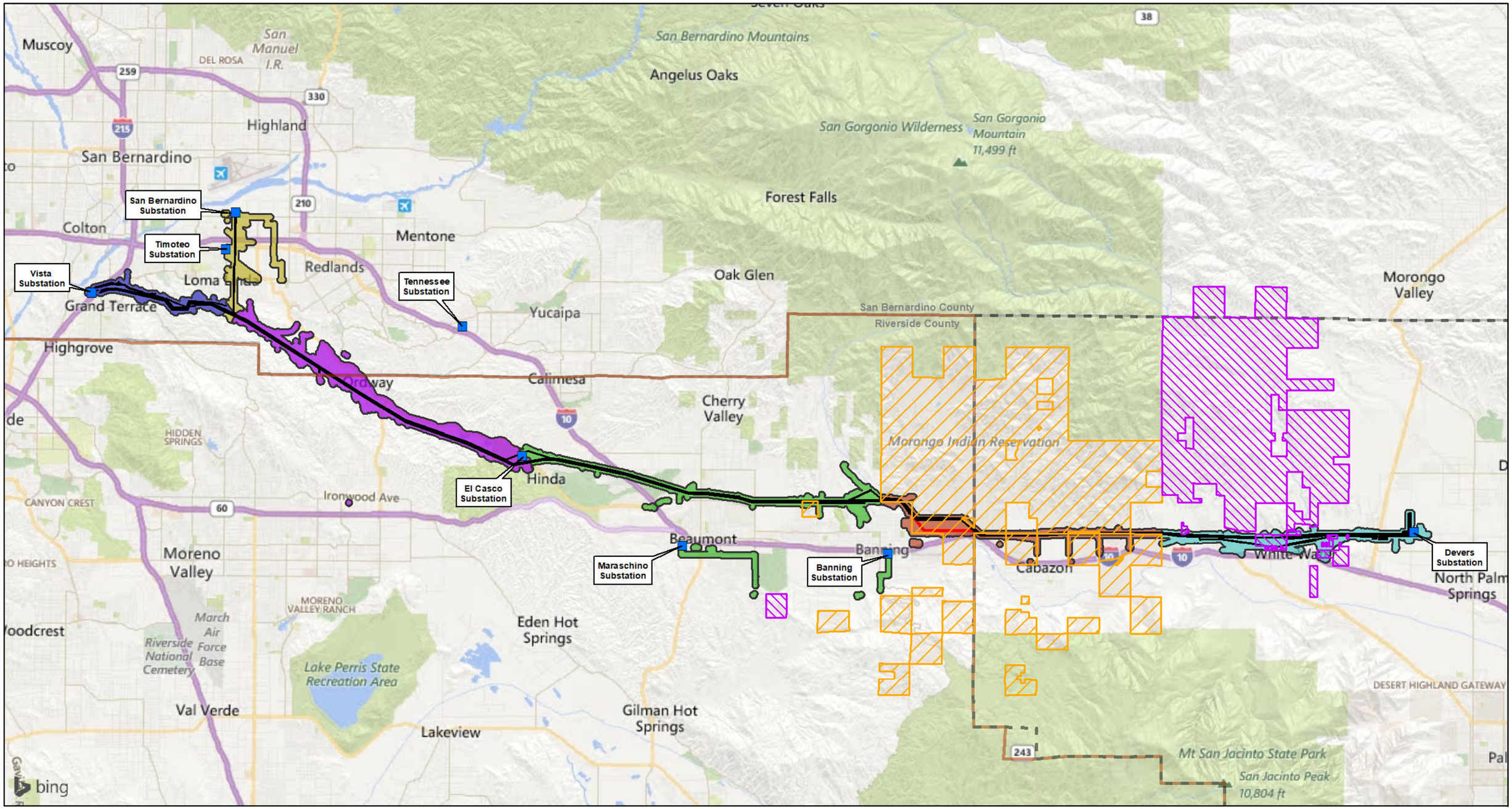
# Chapter 8
# **Revisions**

Revisions made to standard text (black ink) should be noted below to document changes in requirements or SCE's approach to this Habitat Mitigation and Monitoring Plan.

| Date | Description of Revision | Contact |
|---|---|---|
| | | |
| | | |
| | | |

# **Attachment A**
Figures




SOUTHERN CALIFORNIA EDISON
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**LEGEND**

- Project Study Area
- Existing Transmission Line Right of Way
- Proposed Right of Way
- Substation
- Segment 1
- Segment 2
- Segment 3
- Segment 4
- Segment 5
- Segment 6
- U.S. Bureau of Land Management
- Morongo Reservation
- Western Riverside County MSHCP
- Coachella Valley MSHCP

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Source: SCE, Bing Maps

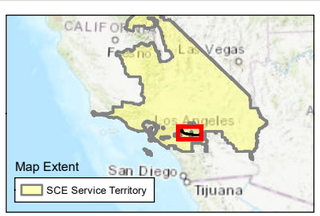


FIGURE 1-1

*Southern California Edison*
*West of Devers Upgrade Project*
**Project Overview and Study Area**
*Habitat Mitigation and Monitoring Plan*

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